AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

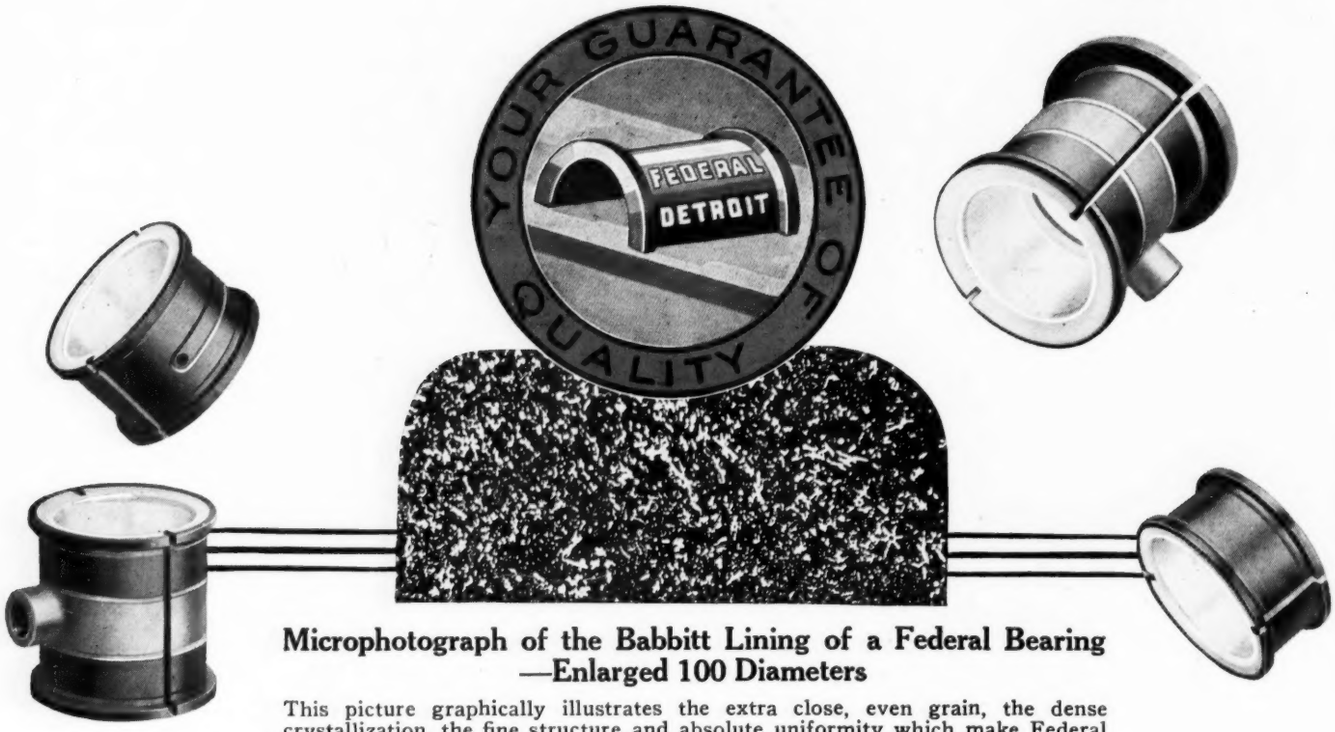
Vol. XLVII
Number 9

PUBLISHED WEEKLY AT 239 WEST 39th STREET
NEW YORK, AUGUST 31, 1922

Thirty-five cents a copy
Three dollars a year

Entered as second-class matter Jan. 2, 1913, at the post office at New York, N. Y., under Act of March 3, 1879.

Federal Bearings



Microphotograph of the Babbitt Lining of a Federal Bearing —Enlarged 100 Diameters

This picture graphically illustrates the extra close, even grain, the dense crystallization, the fine structure and absolute uniformity which make Federal Bearings so superior in wearing quality and toughness.

This finer crystallization in the Babbitt Lining of Federal Bearings is due to the rapid rate of cooling—which prevents the large and uneven crystallization so noticeable in the bearing pictured below.

Microscope Reveals Outstanding Quality of Federal Bearings

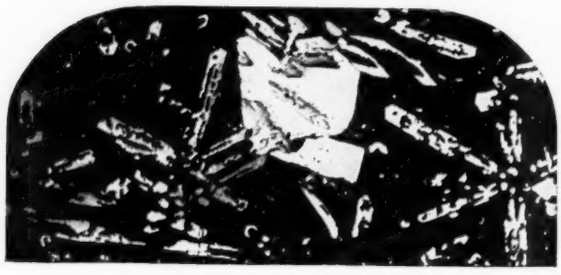
Look at the two microphotographs shown here. They tell a graphic story.

The picture at the top reveals the inherent, structural qualities of the Babbitt Linings of Federal Bearings. Notice the even, close grain, the fine structure and notice especially the absolute uniformity of grain and structure.

This picture shows conclusively *why* Federal Bearings outwear any other make of Bearing on the market—for the microphotograph shows the actual, physical superiority of Federal Bearings—which is due to the Federal Centrifugal Force Process.

The picture below shows an average bearing, used in a well-known make of automobile. Here is revealed the absence of uniformity, the coarseness of grain, the large, uneven crystallization which cause such bearings to break down long before they should.

Everywhere Federal Bearings are winning enthusiastic approval. Our engineers are at your service with reference to your requirements. Federal Bearings will give your motor unusual strength and stamina in the most wear subjected parts. Write for details.



Microphotograph of a Bearing Used by a Well-Known Automobile—enlarged 100 Diameters

Notice the large and uneven crystallization as compared with the Federal Bearing pictured above. This bearing is uneven in structure and diverse in texture—it will show wear quickly in spots—in other words, will flake off under frictional pull.

The structural and physical defects shown in this microphotograph are not visible to the naked eye—and while it looks like a good bearing upon casual inspection, a microscopic analysis shows that it is not.

FEDERAL BEARING & BUSHING CORPORATION

BABBITT-LINED BRONZE-BACK BEARINGS_BRONZE BUSHINGS_BRONZE CASTINGS

DETROIT — MICHIGAN

AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

VOL. XLVII NEW YORK—THURSDAY, AUGUST 31, 1922 No. 9

Why Henry Ford Wants Muscle Shoals

Natural resources combined with tremendous water-power development make possible industrial development of striking magnitude. The South is eager to have Ford secure the Muscle Shoals project.

By James Dalton

WHY does Henry Ford want Muscle Shoals and why does the South want Henry Ford? What and where is Muscle Shoals?

What magic is there in the Tennessee River at that point?

What are the natural resources within this district?

Why do the aluminum and fertilizer trusts object to the development of these resources by Ford?

These are some of the questions which have been agitating the minds of millions of persons in the United States ever since Ford made his now celebrated offer to the War Department to take over the property which had been half developed when the armistice put an end to the expenditure of fabulous sums of money for the production of munitions and other materials of war.

From a casual reading of the millions of words of testimony taken before committees of Congress and from a perusal of the other literature on the subject, it would appear that Ford's main object is to manufacture fertilizer more cheaply than the present makers.

In order to answer some of these questions intelligently the editor of AUTOMOTIVE INDUSTRIES visited Muscle Shoals and gleaned the facts available there. Information was not difficult to gather for the subject is one of burning interest to everyone from cab driver to bank president.

Nor is the interest in Muscle Shoals confined to the "tri-cities" of Sheffield, Florence and Tuscumbia,

THIS is the best article Automotive Industries has had the pleasure of publishing in many months.

It goes to the heart of the Muscle Shoals discussion and tells the automotive industry why one of its leading representatives wants the opportunity to develop this big project.

The story reads like a romance of industry. If you read the first two pages, you will need no urging to go on.

Like many other industrial romances, this one has an intensely practical application.

which surround them. It is general throughout the South, and with good reason. Northerners have no conception of what development of resources now going to waste will mean to the South.

Let it be taken as a text that if Ford gets the property now controlled by the Government the biggest industrial city in the South and one of the biggest in the United States will spring up within ten years in a country now sparsely populated. Ford has said that he will spend $50,000,000 for manufacturing plants at Muscle Shoals.

This bald statement may sound like an unwarranted exaggeration, but it is not. Sooner or later there will be unfolded on the banks of the picturesque river, winding through northern Alabama only a few miles from the border of Mississippi, one of the most astounding industrial romances history ever recorded. If the Ford offer is accepted, the story will be written in the comparatively near future, but if it is declined the writing may be deferred for years. Only inconceivable governmental stupidity and selfishness can prevent it permanently.

Missionaries have been preaching the development of the entire Tennessee River and Muscle Shoals in particular for many years—"missionaries" is the correct term for their message has become a gospel with them. Their words fell on deaf ears, however, until the necessities of war stripped some of the politics away from natural resources and the War Department began its gigantic development which was destined not to be finished in time to be of great service in helping defeat the Teutonic allies.

PRIMARILY, the Tennessee River at Muscle Shoals is rich in water power. This is its chief claim to fame. While it has no plunging cataract, Muscle Shoals is known justly enough as "the Niagara of the South." Engineers declared there is nothing in the United States save Niagara Falls which can be compared to it as a source of hydro-electric power.

Muscle Shoals is that section of the Tennessee River about midway between Nashville and Chattanooga, with a total fall of 130 ft. in thirty miles of rapids. The force latent in these rapids, when it is fully developed, will produce from 900,000 to 1,000,000 hp. The significance of this statement is found in the fact that the total of hydro-electric power now developed in this country is estimated at only 8,000,000 hp. In other words, Muscle Shoals can develop one-eighth as much water power as there is now in use.

It probably will be agreed unanimously that it is an economic crime to have all this power going to waste.

But water power alone would not take Henry Ford down into Alabama. Other sections of the country have tremendous supplies of undeveloped water power. Nor would the opportunity to make synthetic nitrate take him there.

BUT no one has found elsewhere in this country, up to this time, an unlimited supply of cheap power with practically all the raw materials needed for the construction of automobiles and farm implements almost literally in the backyard. In this lies the answer to the opposition of various interests to acceptance by Congress of the Ford offer.

Here are some of the things of which Ford could get unlimited supplies within a radius of 125 miles of Muscle Shoals:

Bituminous coal from which is obtained beehive and by-product coke.

Iron ore which will produce high grade pig iron particularly adapted for automobile and machinery castings, within 25 miles.

Bauxite, which is rich in the alumina from which aluminum is made, within a stone's throw of Sheffield.

Limestone for foundry fluxing purposes.

Cement rock.

Forests which will provide maple, hickory, elm, walnut, beach, oak, poplar, cedar, chestnut and pine.

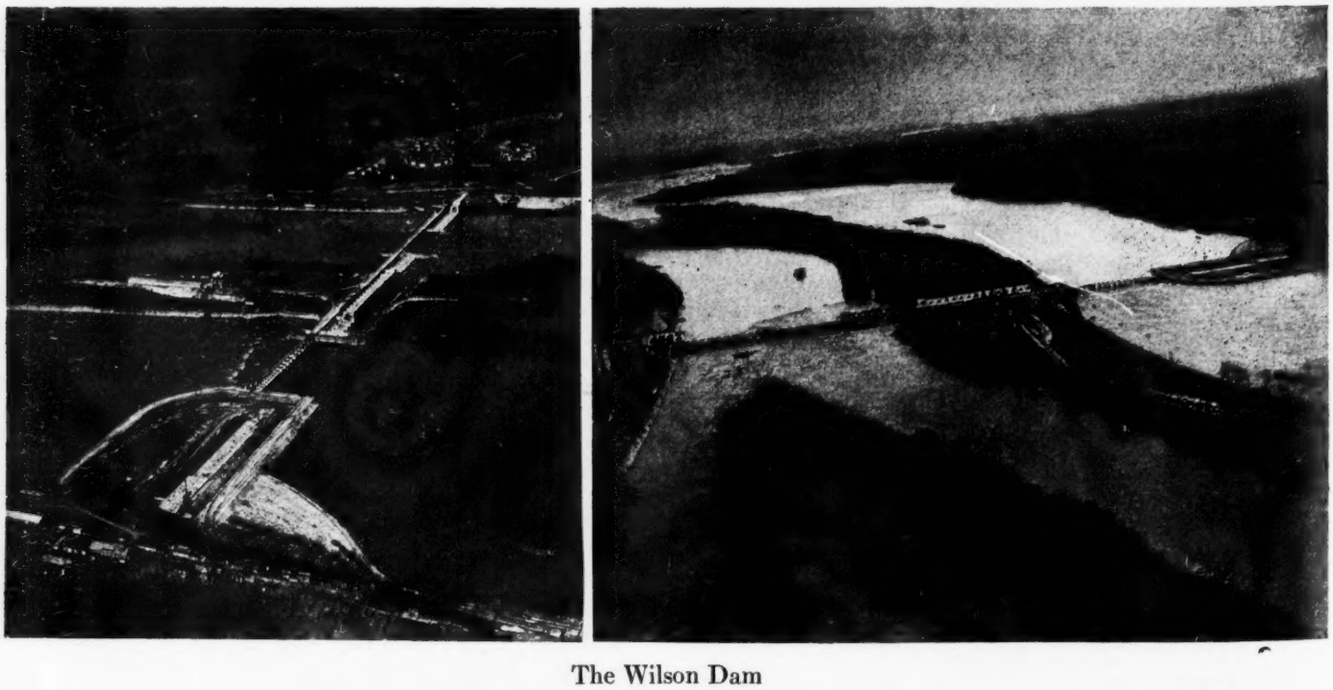
Cotton suitable for tires and fabric.

Kaolin, a very pure white clay which is a hydrous silicate of aluminum.

Chert, a mineral closely allied to flint.

What more could a man in the business of manufacturing motor vehicles and farm machinery ask?

Nor should it be assumed that Muscle Shoals is in a remote and inaccessible district.



The Wilson Dam

The Tennessee River, open all the year, affords water connections with the Ohio and Mississippi rivers. It connects with the Ohio at Paducah, Ky., and thence by the Ohio and Mississippi with Memphis, Vicksburg, New Orleans and the Gulf of Mexico, all the way down stream. Cargoes can be floated up-stream on the Ohio to Evansville, Louisville, Cincinnati and Pittsburgh or along the Mississippi to St. Louis and farther upstream.

Ford could easily send barges up the Ohio to connect with his D. T. & I. road. He also could get a substantial freight differential by floating his products to the Mississippi and loading them on the west bank.

Three railroads center at Sheffield on the south bank of the river in the heart of the Muscle Shoals district. They are the Southern, the Louisville & Nashville and the Northern Alabama. The Illinois Central has announced that it will enter the territory when industrial developments warrant it in doing so.

Is it strange that Ford is eager to gain access to this wonderland? Is it to be wondered that Alabama and the entire South want him for an adopted citizen?

The common or garden variety of imagination gets tied up in bow knots trying to picture what would happen if Congress should permit Ford to bring his tremendous wealth and undeniable industrial genius to bear upon these limitless natural resources.

The people of Sheffield and Tuscumbia see visions of another Detroit. The citizens of Florence, just across the river, are not quite so enthusiastic—on the surface—but they are just as much interested.

When the Government undertook its gigantic development they had a taste of what intense industrial activity might mean to them, but the cup of joy was snatched from their lips when work was suspended. They thought perhaps their dreams were coming true, but now they have no illusions about what the Government will do with the power it will be possible to develop with the Wilson dam, for the completion of which Congress has appropriated $7,500,000 available Oct. 1.

These people of the tri-cities are more or less blasé. They know what it means to have from 20,000 to 30,000 strangers within their midst. They had that many when operations at Muscle Shoals were at their height. But that is not enough.

These visionaries, if visionaries you can call them, can close their eyes and see both banks of the Tennessee for miles and miles lined with great industrial plants. They know what these plants will bring in their wake in the way of population and civic expansion. It unquestionably is true that many of these people will benefit tremendously financially, but their interest is not all selfish. If it is selfish it is no more reprehensible than that of the citizens of other cities who are striving to build up their home towns.

Even the possibility of this tremendous expansion has brought about a real estate boom. It is significant, however, that it was a substantial Detroit real estate dealer, familiar with the life history of Henry Ford, who led the way. It was he who spent approximately $100,000 in the purchase of farm land along the main road from Sheffield to Muscle Shoals. This land never had brought more than $100 an acre and he paid $250 for it. He has cut it up into plots and is holding them to reap a golden harvest when Ford comes.

Compared with him the native real estate men are pikers. As a matter of fact they are Samaritans, for the Chamber of Commerce has decreed that the time shall never come when artisans and mechanics will not be able to buy for $750 a 5-acre plot, within easy distance of their work, on which they can build a cottage or a bungalow and still have land enough left to provide a pleasant lawn, fruit trees and a small farm.

These men of Alabama are not conscienceless profiteers. They do not propose to squeeze the last nickel out of the multitude which industrial development will bring as neighbors. They will be content to profit almost incidentally and leave the rest to their descendants. They are no paragons of virtue, but they have a little milk of human kindness in their breasts and they don't propose to throttle by selfishness a potential stream of riches. Then, too, they have vision and that is something given to comparatively few practical people. But back of that is the fact that they are Southerners, proud of their heritage and convinced that the South some day will be as great industrially as the North, or East or Middle West. To this end they are willing to sacrifice some of their own profits.

The country has been pretty well informed about the Wilson dam, control of which after it is completed by the Government, is one of the essential features of the Ford offer. It is 4300 ft. long, its base is 160 ft. wide and its total height is 120 ft. When completed it will be the largest single piece of monolithic concrete construction in the world. The locks, which will be built for navigation purposes, will have a lift of 45 ft.

When this dam is completed, without any further power development such as would be undertaken by Ford, it could supply 600,000 hp., adequate to operate the two gigantic nitrate plants built by the Government with enough left over to supply the present needs of all the territory within a radius of 200 miles. It is estimated that this would release for other uses about 6,500,000 tons of coal annually.

THE report of the Muscle Shoals committee of the American Farm Bureau Federation says that in dealing with the whole proposition of manufacturing nitrates either for military or agricultural purpose consideration should be given to the "remarkable list of advantages" at Muscle Shoals.

They include practically inexhaustible quarries of purest lime rock only 28 miles away; coke produced in the coal fields of Tennessee; the greatest deposits of raw phosphate rock in America; coal beds of immense proportions which almost surround Muscle Shoals, all within easy hauling distance. Great quantities of coal are needed to burn the lime rock.

The report adds that "Muscle Shoals is nearly in the heart of the great fertilizer using section of our nation and is also situated agriculturally somewhat near the center of the whole country."

It is asserted that agriculture is the biggest user of nitrogen and therefore "is primarily concerned in its production at a price which will permit of its use." The committee also points out the possibilities of producing in great quantities other chemicals used in agriculture as by-products.

The committee recommended that the power and nitrate plants be operated under the direction of a governmentally owned corporation.

THE steam power plant at Muscle Shoals produces nearly as much electrical energy as any other steam plant ever built. It contains one steam turbine unit with electrical generators which generates 60,000 kilowatts or 80,000 hp. It is the mate of the turbine in the New York Central's Grand Central power house. There is room in addition for another turbine of half the size.

A detailed description of the nitrate plants already built is hardly worth while, for the salient facts about them are pretty well known. Ford has agreed to use one or both of them for the manufacture of fertilizer which would be sold at a profit of 8 per cent. In case of war they would be turned over to the Government for the manufacture of nitrate. It is probable that as factories they have scarcely entered into his considerations and it is certain that they are really incidental to his main plans.

Nitrate plant No. 2, in which the cyanamid process was used, has been in successful operation, and the War Department now has a reserve of some 1500 tons of nitrate made there. Plant No. 2, in which the Haber or synthetic process was employed, never was operated successfully. Ford professes to have a process of his own for the manufacture of nitrate and it is certain that with cheap power and easily accessible raw materials he can sell fertilizer more cheaply than the present makers. That is one of the reasons for the determined opposition to his plan offered by the "fertilizer trust," which has powerful friends in Congress.

PROBABLY only Henry Ford himself, his son and his closest advisers know exactly what he proposes to do with Muscle Shoals if his offer is accepted. It is probable, also, that the leading citizens of the "tri-cities" who have attended him on his two visits to Muscle Shoals and who have followed most closely the course of his negotiations, have a clearer conception than almost anyone of the magnitude of his conception. There is considerable evidence scattered here and there, to back up their contentions, but it never has been assembled into a concrete whole. Here is an outline of his plans as told, with substantial unanimity, by a dozen of the most prominent men of Sheffield and Florence:

Ford proposes to bring out sooner or later a new car of a type entirely different from the one now being operated by the millions. In some respects it will be more conventional in design and in others it will be a radical departure from accepted practice. One of its most notable characteristics will be its lightness.

To attain the lightness which Ford has in mind, and which his engineers have demonstrated in his laboratories is practical, light alloy steels and aluminum will be used most liberally. All the materials he will need can be obtained in unlimited quantities in the Muscle Shoals district.

It is the belief in Florence and Sheffield that the new car will be made on the banks of the Tennessee River in a gigantic new plant, which will at least duplicate in size the one at Highland Park. When the new plant is thrown open and the new car is in quantity production, as only Ford understands quantity production, manufacture of the present line will be abandoned.

The huge Highland Park plant will not be abandoned, but as much of it as necessary will be used to make parts for the Fords now on the road. There will be a great surplus of space which can be devoted to expansion of the truck and tractor business and to other purposes which Ford may have in mind. This space obviously will increase from year to year as the present Ford cars wear out, but it is felt that Ford always will be able to find some use for it.

THE people around Muscle Shoals believe that Ford will manufacture there practically all the materials and parts which will go into the new car. One of the plans they attribute to him, or rather to Edsel, who is said to have proposed it first, is the construction of one of the biggest cotton mills in the world in which tires will be manufactured and fabric made for tops and such other purposes as he can use it for. All the cotton needed can be purchased within a few miles of Sheffield.

It is asserted, also, that Ford will not by any means confine his southern activities to motor cars. There is talk of expansion of his tractor industry and a new motor cultivator which will sell at a price low enough to bring it within the reach of even the poorest farmer. For this work he will build electric furnaces and the most modern steel-making devices.

Muscle Shoals, it is asserted with confidence, will make it possible for Ford to realize his dream of retailing a car, truck and tractor for $1000.

These are some of the things Sheffield and Florence expect Ford to do. They are confident, however, that the development of their cities will not be confined to Ford activities. They see in the future scores of smaller plants springing up to supply Ford with some of the parts and accessories he needs, but will be too busy on bigger things to make.

As a matter of fact, the South is no stranger to hydroelectric power and the extent to which it has been developed in that section of the country is a revelation. It seems almost that wherever you go in the South you are passing under a succession of high tension transmission lines, the energy for which is supplied by water power.

That is why the power interests of the South are opposed to acceptance of the Ford offer. These interests in Alabama, Tennessee and Georgia are closely allied and exercise a virtual monopoly in their respective States.

MUCH has been written of the relationship of the Alabama Power Co. to Muscle Shoals and the possibility of having it exploit the power produced there. As a matter of fact this corporation gets no power from Muscle Shoals. Its only present relation to the project is a cancellable lease on the steam power plant which was built by the War Department to supply power for the nitrate plants pending completion of the Wilson dam.

This plant is leased solely for emergency purposes and almost never has been used. Its only value is to give the Alabama company a source of power in case of emergency when something goes wrong with its hydroelectric plants. This company and its allies in Georgia and Tennessee monopolize the water power in the three States. The Alabama Power Co. is building its huge Mitchell dam across the Coosa River in southern Alabama and not the Tennessee.

The proposition made by the Alabama Power Co. to the War Department for taking over the Muscle Shoals project gives some interesting facts about its operations and about its views of future developments. The proposition said, in part:

"For many years the Alabama Power Co. has been serving electricity to the industries and the public in Alabama. It is an Alabama corporation having several

thousand stockholders in Alabama. It has now more than 17,000 customers and serves more than 50 municipalities. It has more than 1500 miles of transmission lines, an installed electric generating capacity of 175,000 hp. and is engaged in constructing a new hydro-electric plant on the Coosa River of 110,000 hp. capacity. Its facilities are now being used to supplement the power supply in Tennessee, Georgia and South Carolina and even as far away as North Carolina, 600 miles distant, and can be used in even more distant localities.

"FOR many years this company has been identified with the Muscle Shoals situation. For several years before the war it had owned the Wilson dam site and at the outbreak of the war it was actually proceeding with plans for a power development at this point.

"After this country entered the war the Government desired the site for war purposes. We thereupon donated the site to the Government and transferred to it for $1 titles and rights in connection with which we had already spent just under $500,000.

"We are assured by a number of important industrial enterprises that if the power from this development becomes available to the public they will establish new plants and factories in this locality. If the Muscle Shoals power can be made available for everybody, we believe that not only will a number of new industries be established at and near Muscle Shoals but the industrial development of Alabama, Tennessee, Georgia, North and South Carolina and, indeed, of the entire South, will be promoted. Hence our willingness to assume the responsibilities involved in our offer."

You will be told at Sheffield, and doubtless with truth, that Thomas A. Edison is co-operating with Ford along electrical lines in connection with Muscle Shoals. The "wizard" is supposed to be developing something new in the way of electric furnaces which will improve and expedite production.

When asked for evidence they point to the fact that Edison accompanied Ford on his second visit to the Shoals and expressed amazement at its possibilities and potentialities, both for war and peace.

Henry Ford is something of a fetish not only in Alabama but throughout the South. The negroes seem to regard him as a sort of second Lincoln. It is felt in all quarters that he is the one man in the country who can and will develop the full resources of the Tennessee if he is given the opportunity by Congress.

NO discouragement seems to be felt because no action is likely at the present session on the Ford offer. He is hailed in the South as a fighter who never stops until he gets what he wants.

It is related that on his second visit to Muscle Shoals, when he stood in the circular lobby of the Sheffield hotel surrounded by the members of a citizens committee, he was asked:

"Mr. Ford, what will you do if Congress refuses to accept your offer?"

Ford clenched his fists and with an emphatic downward motion of his arms, exclaimed:

"I want Muscle Shoals and I'm going to get it. I'm no quitter and if Congress turns me down I'll only fight all the harder."

Edsel, who stood beside his father, nodded his head approvingly, although he was a reluctant convert to the idea of exploiting Muscle Shoals. He was a doubting Thomas until his father dragged him off to see them and then he became even more enthusiastic than his dad. He was the first to grasp the possibilities of a huge tire and fabric mill.

THERE are many legends as to the origin of the term "Muscle Shoals." The one most generally accepted in the district goes back to Indian days. It is said that when the Red men navigating their canoes came to these rapids in the Tennessee they found the passing of the shoals so difficult they developed a prodigious amount of muscle and hence the name, "Muscle Shoals."

Henry Ford is quoted as having declared that if he gets Muscle Shoals it will give employment directly and indirectly to 1,000,000 men. It is said that 8000 employees of the Ford plants in Detroit already have filed applications to be transferred to Sheffield. There is no doubt in the mind of anyone in that district that Ford's prediction of a million workers will be fulfilled within ten years if only it is possible to get favorable action from Congress. But they feel that will be only the beginning and they will point out that Ford contends one man should be employed for every horsepower generated and that there are 1,000,000 hp. in the Muscle Shoals.

FIGURING on the man per horsepower basis, they assert that Ford will have developed 300,000 hp. within five years after he gets the property.

Whether or not this is true, foundations now are being laid for a gigantic hydro-electric power house on the Sheffield side of the Wilson dam. Plans have been completed for an initial installation of four turbines which will generate 30,000 hp. each. Ultimately 14 more of 36,000 hp. each will be installed.

Ford's development plans do not end with completion of the Wilson dam and utilization of all the power it can generate. When it is finished a lake 15 miles long will be created and the islands in the river will be submerged. Some 15 miles beyond the far end of the lake Ford would build what would be known as No. 3 dam. It would be 6250 ft. long but only 40 ft. high and would develop an additional 300,000 hp.

Conservation dams also would be built by Ford in the upper Tennessee. The purpose of these dams would be to hold in storage the flood waters which come down stream in the spring and make the surplus available for capacity operation of his power plants when they otherwise would be partly idle at slack water.

No. 1 dam, which would be for navigation purposes only, would span the river between Sheffield and Florence. With the completion of all three dams it would be possible to eliminate the series of locks which has made navigation possible past Muscle Shoals and provide for navigation of the Shoals even in slack water.

In this connection it should be remembered that since work was begun on the Wilson dam more than four years ago, through navigation of the Tennessee has been impossible. Barges coming up from the Ohio have had to stop below the Florence bridge. This has been a rather serious blow to commerce in Chattanooga and other cities farther up stream for the time was when barge traffic on the river was not inconsiderable for a long distance. The barges used are similar to those in operation on the Ohio and Mississippi.

This is one reason why Chattanooga and Knoxville are exceedingly anxious to have the Ford offer accepted. They point to the statement of the late Senator John T. Morgan in his report to Congress on "Navigation of the Tennessee River."

"A just and wise national policy will give the Tennessee River its rightful position as the foremost tributary of the Mississippi River and as a contributor to the wealth and commerce of the country. The overruling Providence that controls the destiny of the United States and of all nations and peoples seems to have held these great resources in reserve to supply the wants of other localities as they are disclosed by the rapid growth of the facilities of transportation."

People in the towns along the Tennessee will tell you that one of the reasons why their river has not been developed is the jealousy of Congressional representatives of the territory served by the Ohio. As a matter of fact Congress has made surprisingly small appropriations for the improvement of the Tennessee and surprisingly large ones for the improvement of the Ohio when their relative importance in the movement of commerce is considered.

Until Ford made his offer private capital was almost indifferent to the possibilities of the river. A syndicate was formed in 1910 with a capital of $300,000 to build a dam at Muscle Shoals, but President Taft vetoed a bill which would have given it water power rights.

Carrying out of Ford's plans would not benefit water transportation alone, for upon them depends electrification of the Louisville & Nashville Railroad from Sheffield to Nashville, a distance of 130 miles. Additional railroad electrification is possible for Sheffield is only 128 miles from Birmingham, 160 from Chattanooga, 148 from Memphis, 444 from Chicago and 784 from Washington. One of the main lines of the Southern starts at Memphis and runs through Sheffield to Chattanooga, Knoxville and Washington.

BIRMINGHAM is full of reports that a company recently formed there which is buying and obtaining options on coal and iron lands is working in behalf of Ford, but those familiar with his plans do not believe it.

Another report is that Ford is back of a project for building a railroad from Muscle Shoals to Pensacola, Fla. The line has been surveyed and a right of way staked out, but it is much more likely the promoters hope to unload on Ford than that he is back of the project.

The Louisville & Nashville Railroad, which refused to permit Ford to operate over its lines in connection with the movement of coal over the D. T. & I. is very strong in this section.

As a sidelight on the possibilities of river navigation it is pointed out that there is timber along the river in Alabama and Tennessee which never has been touched and which could be floated down to Sheffield. Another interesting point is that W. B. Mayo, chief engineer for Ford, testified that it might be more profitable to develop coal mines on the river and transport coal by water than to haul it by rail after the dams are completed.

If Ford is given the chance to develop this section of the South he will not be starting upon desert soil. Florence now has a population of 12,000, Sheffield of 8000 and Tuscumbia of 6000. All are attractive little cities, especially Florence, which has a state normal school. The limestone cliffs overhanging the Tennessee offer ideal locations for handsome homes.

Housing would not offer a difficult problem for the pioneers of the Ford city building army. The government provided housing facilities for nearly 25,000 workers during the war and some of the barracks now standing could be made habitable without difficulty. The government built at Sheffield 200 cottages of four, five and six rooms and bought material for 1500. It also built at Tuscumbia a large number of pretty stucco houses with red tile roofs. All these would be available for homes as a beginning and there is unlimited room for expansion on both sides of the river. Florence and Sheffield are connected by a bridge which carries a trolley line and vehicle traffic on its double decks. Around plant No. 2 alone he would have 4200 acres of land.

The government has expended $90,000,000 at Muscle Shoals, of which $65,000,000 went for nitrate plant No. 2; $13,000,000 for nitrate plant No. 1 and $17,000,000 for the Wilson dam. Work already has been resumed on the dam with an unexpended balance from a previous appropriation with the building of coffer dams, possible only at slack water, in preparation for use of the additional appropriation which will be available Oct. 1. These operations will again bring temporary prosperity to the "tri-cities" which have been sadly quiet since work was suspended after the armistice.

Notwithstanding the fact that business slumped suddenly from unheard-of levels to those of pre-war days, Sheffield and its neighbors have gone on patiently doing as much as they could to provide for the future. Among these activities have been the building of highways in expectation of a tremendous increase in tourist and truck traffic in the near future.

Colbert County (Sheffield) and Lauderdale County (Florence) each have appropriated $250,000 for highways. The roads will radiate throughout the counties and reach the Mississippi line. The Jackson military highway which starts at Chicago and touches Louisville and Nashville, runs directly through the center of the Muscle Shoals district. Work also is being pushed on a road to Albany and Decatur to connect with the Bee Line highway from Florida resorts to northern cities which are of commercial importance.

It may be said in all fairness that the entire South, except for a comparatively few bankers and other wealthy men allied directly or indirectly with power interests, want Congress to accept the Ford offer without delay. They believe that the big power, fertilizer and aluminum interests are bringing evil influences to bear upon Congress to prevent its acceptance.

They are confident that with Ford in the saddle a great industrial metropolis would rise at Muscle Shoals which would be of prodigious benefit to a vast territory.

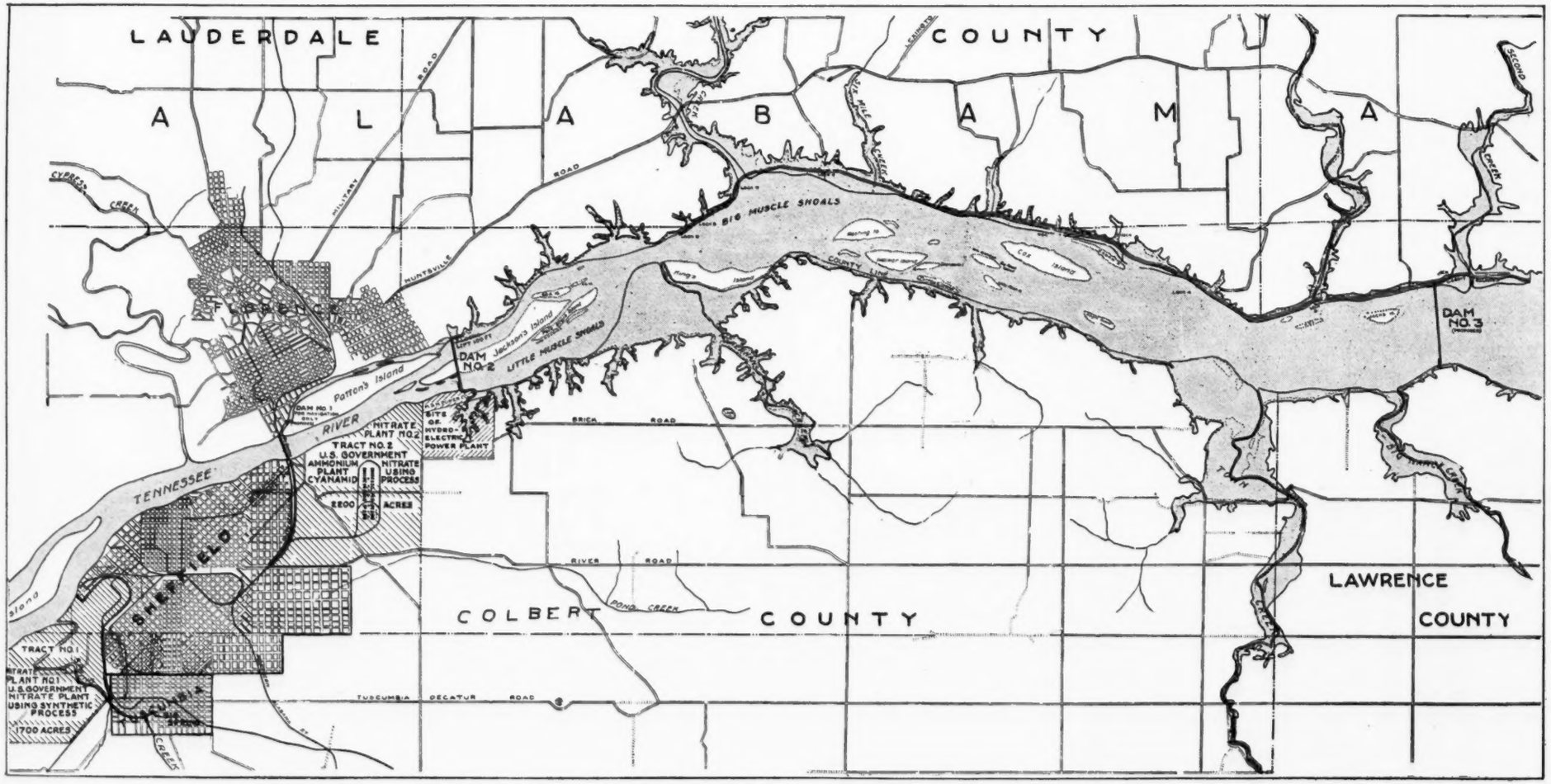
They see in Ford development of motor vehicles and motorized farm implements modernization of the South as an agricultural section. They believe also that his operations would benefit the entire country.

As a corollary they know that he would produce fertilizer at a cost which would permit him to sell to farmers more cheaply than they can buy to-day and thus benefit agriculture throughout the United States.

They feel that his expanded operations would benefit the entire automotive industry because every user of a Ford car is a potential buyer of an expensive vehicle.

Last, but by no means least, they believe creation of a great city at Muscle Shoals would do more than anything else could to cement the interests of the North and the South and destroy the last vestiges of sectional feeling.

Muscle Shoals Project Which May Develop 1,000,000 Hp.



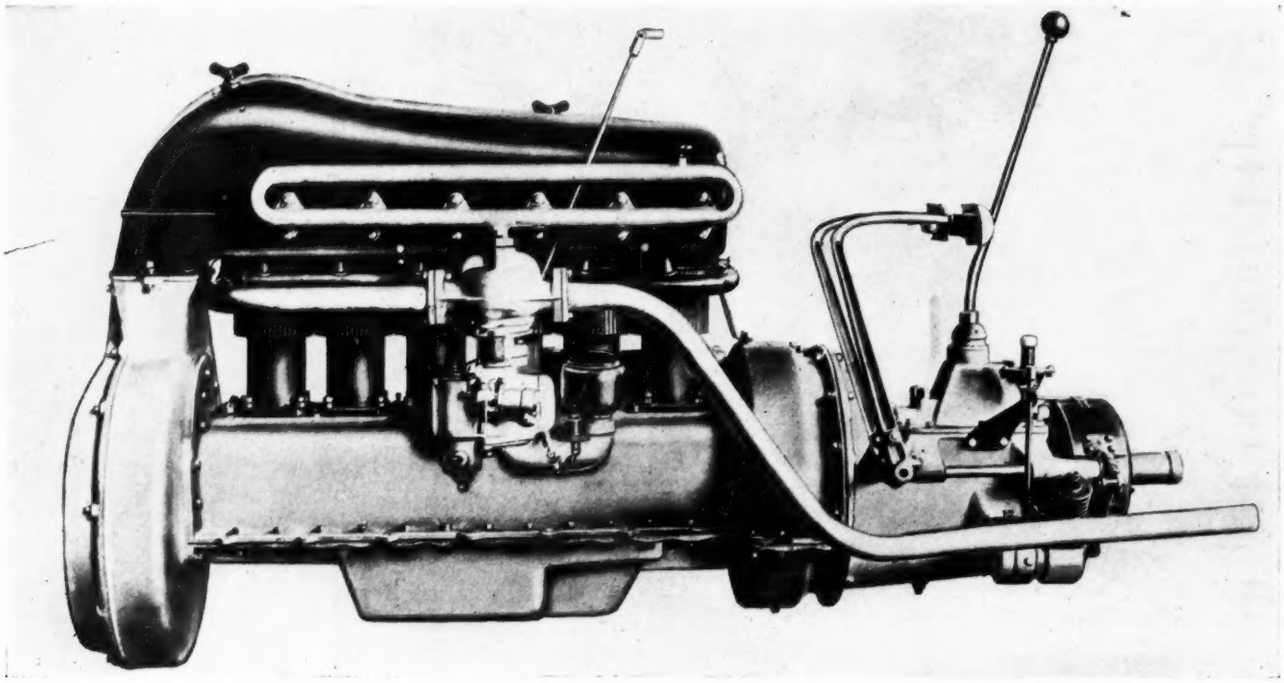
Here is a map that gives a good general picture of the Muscle Shoals layout. The course of the Tennessee River is shown, together with the location of the various dams, concerning which there has been so much discussion in the daily press.

The main highways running through this district are also shown.

Dam No. 2 is the now-famous Wilson dam upon which construction has already been started. Photographs of this dam are shown on another page.

Dam No. 1 is of less magnitude and of less commercial importance than the other two, since it will simply be for navigation purposes. It will have nothing to do with the big power development plans. No work has been done on Dam No. 1

Dam No. 3 is also in the "proposed" stage. It would be located at some distance up the river from Dam No. 2 and would aid in the power development project.



Inlet side of the new Franklin unit powerplant. The exhaust pipe is brought around the engine to provide heat for the new vaporizer

New Franklin Has Remodeled Cooling System

Sirocco blower in front of engine forces air through volute casing and rearranged air jacket. Flywheel fan eliminated and power consumption decreased. Unit powerplant now employed. New vaporizer, air cleaner and electric primer among improvements.

By P. M. Heldt

A NEW six-cylinder Franklin car, known as series 10-A, has been announced by the H. H. Franklin Manufacturing Co. to take the place of the model heretofore manufactured. In a general way it is the same type of car as the previous one, having the same cylinder dimensions and the same wheelbase, but important changes have been made in the carburetion and cooling systems, the chassis now has a unit powerplant instead of a separate gearset, and minor improvements have been made in several other units.

The most important change is that involved in the redesign of the cooling system. The fan, which was formerly a part of the flywheel, and arranged to draw air through the jacket space, is now displaced by a blower of the Sirocco type mounted on the front end of the crankshaft and arranged so as to force air through a modified jacket space. This blower handles more air than the flywheel type, but the blower itself and the delivery system connecting it with the cylinder jackets, including the volute blower casing, are so designed that the power required to move the greater volume of air is less than that consumed by the flywheel fan.

Another important change is the addition of an exhaust-heated fuel vaporizer intended to prevent liquid fuel from reaching the cylinders. An electrically heated priming device is provided to facilitate starting, especially in cold weather.

In starting upon the development of a new model the chief objects which the Franklin Co. had in view were: (1) to produce an engine capable of greater output for the same cylinder dimensions; (2) to provide a more efficient cooling system whereby more air could be circulated through the cooling jackets with less expenditure of energy; (3) to make possible the use of a unit powerplant, which facilitates chassis assembly, and (4) to provide a vaporizer that would maintain the temperature of the incoming gases within narrow limits and re-circulate any unvaporized fraction of the fuel until vaporized.

In the previous Franklin engine the jackets were surrounded by a horizontal deck dividing the upper and lower

part of the space between engine and hood. Air was drawn into the upper part of this space through a grating in front of the bonnet, passed through the jackets to the lower part and was exhausted therefrom by the flywheel fan. The new design obviates two disadvantages encountered with the old arrangement.

With a flywheel fan it is difficult to find room for a volute of adequate size around the flywheel, which is required for efficient fan operation. The flywheel fan is therefore replaced by a blower at the forward end of the engine, and with an engine of this size (30 hp.) it is still possible to accommodate a blower with an adequate volute between the frame members.

THE other feature referred to has to do with freedom from leaks of the channel or passage for the cooling air. In the new design the air passage outside the jackets themselves is formed by rigid aluminum castings and is of such form that the air speed is substantially the same at all sections. There being no abrupt changes in section, the likelihood of forming of eddies, which are always a source of loss, is minimized, and, moreover, the rigid air passage walls are in no danger of being bent out of shape in service, with resultant loss of cooling air. The final result of these improvements in the cooling system has been that now about 2.5 times more air is circulated through the jacket space at a given engine speed, while a material reduction in the power consumption of the fan has been effected.

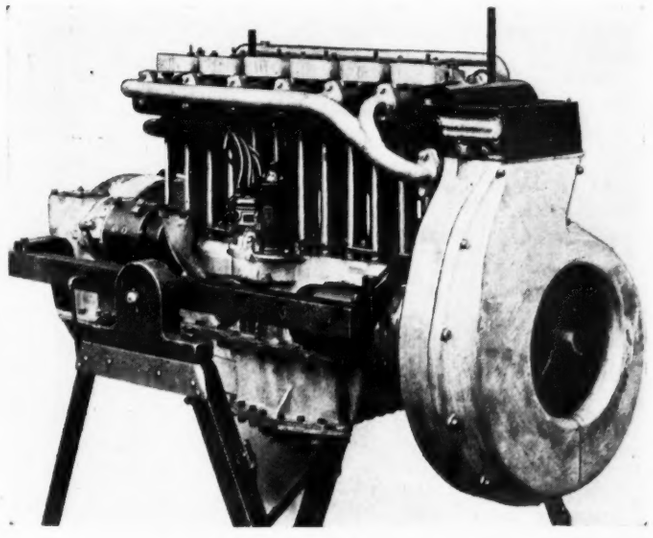
The large open grille at the front of the hood is said to allow free passage for fully four times the volume of air used by the blower. This excess is used to cool the outer surface of the cylinder fins and the aluminum crankcase, which receives its heat partly from the oil.

That the new engine is adequately and positively cooled for all conditions is said to have been demonstrated by trips through Death Valley in a temperature of 120 deg. Fahr., and up Pike's Peak to 14,900 ft. elevation.

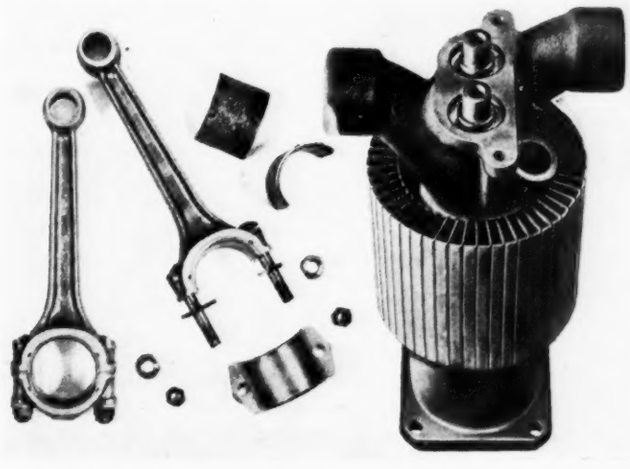
The engine has six 3¼ x 4 in. cylinders, cast separately, as in the past. Cylinder and head are a single casting, with the sheet steel cooling fins set into the mold and cast into the cylinder wall. A change has been made in the form of these fins whereby their cooling capacity has been increased. Formerly the fins were flat strips and were surrounded by a separate sheet iron jacket, which, since it did not have any intimate metallic connection with the fins, had no effect as cooling surface. Now the outer part of the fins are turned over at approximately right angles, so their edge comes close to the next fin, thus forming a closed jacket space without a separate outer jacket. This form of construction has made it possible to reduce the jacket diameter to 5 in. as against the 5½ in. previously. The axial length of the cooling fins has also been reduced to 5 in. as compared to 7¼ in. formerly. In spite of the reductions in jacket diameter and length, the fin cooling area remains the same.

The blower of the cooling system is mounted on the crankshaft at the forward end and is of the Sirocco type, with a 14 x 3½ in. impeller. This impeller is placed in a volute housing to increase its efficiency and air capacity. The air inlet to the housing is smoothly rounded so as to avoid the formation of eddies and its back plate forms the cover of the case enclosing the chain which drives the camshaft and generator. The aluminum air housing extends lengthwise over the top of the cylinders and is provided with six circular openings fitting the upper ends of the cylinder jackets. This housing is made in two parts, with a joint in a horizontal plane at the center of the inlet and exhaust fittings. Deflector plates are located inside the air housing so as to distribute the air equally to all of the jackets. The air housing is held to the top of the engine by means of two studs with wing nuts and can be quickly removed. Single cylinders can be removed without disturbing adjacent parts, and the engine is generally more accessible owing to the elimination of the sheet metal decks formerly employed.

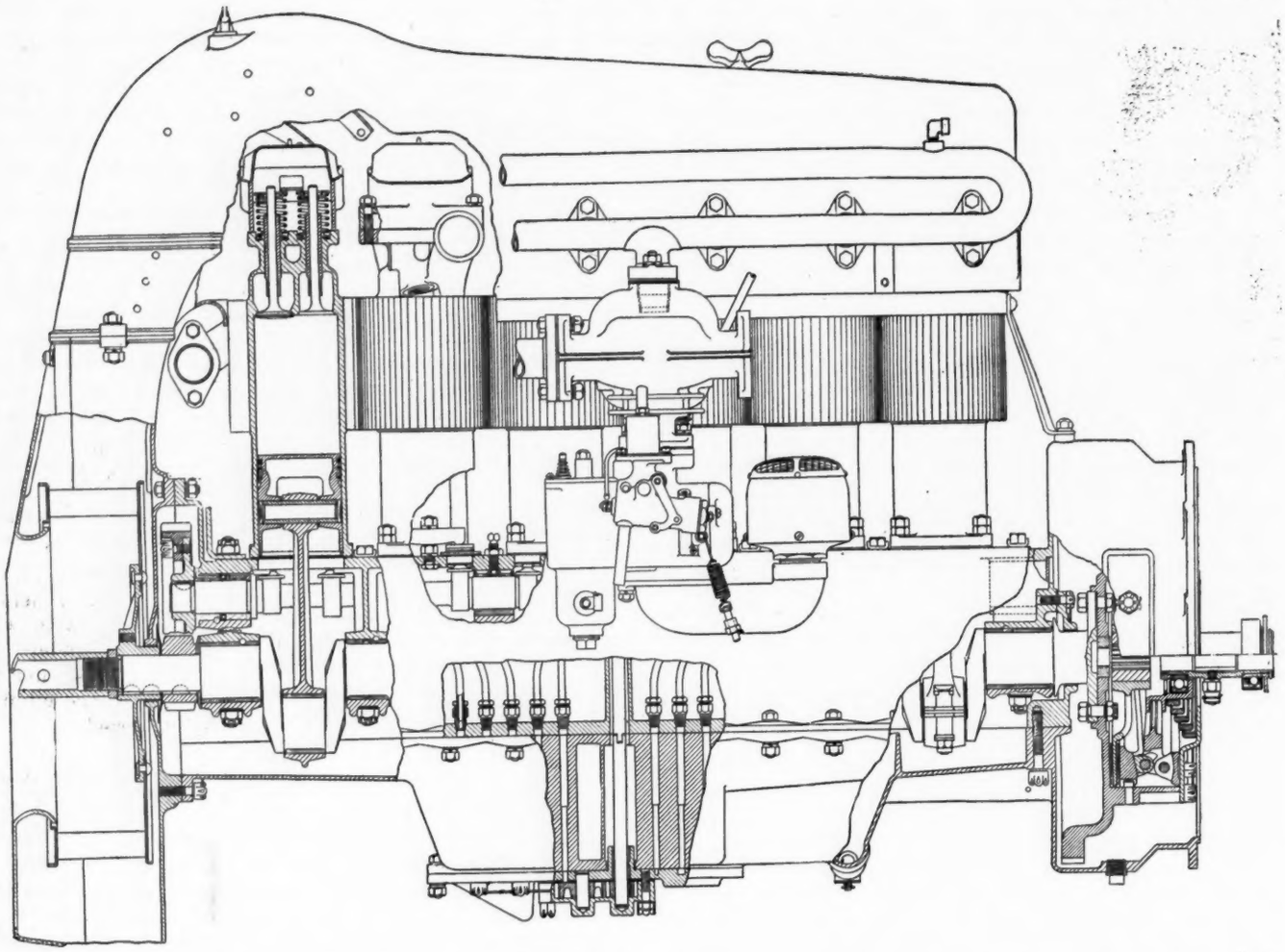
TURNING now to changes in other engine parts, it is to be noted that the wrist pin floats. It is held from drifting in the piston bosses by means of a spring steel ring over its ends, and is thus easily removed by taking this ring off. This ring when in the free state has an outside diameter smaller than the cylinder bore, and consequently does not bear against the cylinder walls. Die cast aluminum pistons, which the Franklin company has successfully used for a number of years, are continued in the new model. An innovation is the use of connecting rods of drop forged duralumin. The Franklin company is among the first to use connecting rods of this material in a stock model. The use of a light alloy in the connecting rods has resulted in a considerable lightening of these parts. The steel connecting rod formerly used weighed 2.2 lb.,



Three-quarter front view of new Franklin engine showing volute casing for the blower, and the separate lighting generator and starting motor



The forged duralumin connecting rod which weighs only 1¼ lb. as against 2.2 lb. for the steel rod formerly used. The new Franklin cylinder, showing fins bent at right angles to form integral outer jacket wall which becomes effective cooling surface. Fins are of steel and cast into the cylinder walls



Side elevation of engine, partly in section, showing blower mounting at front end and air duct which conveys air to cylinder jackets

while the duralumin rod with die cast big end bushing weighs only 1.25 lb. The rod is of I-section and has a sectional area about 20 per cent greater than the steel rod formerly used.

The Franklin company is one of the pioneers in the use of the case-hardened crankshaft, which will be continued in the new Series 10. All of the bearing surfaces are on die cast bushings of their own manufacture. These are backed directly by the aluminum of the crankcase and duralumin of the rods, thus providing each bearing with the unusual capacity for radiation of heat. The upper end of the duralumin of the rod bears directly upon the steel of the piston pin. The weight of the piston with rings, piston pin and piston pin retaining ring, is 1.394 lb.

A seven-bearing crankshaft of substantial dimensions is used, the diameter of all bearings being 2 in. The connecting rod bearings measure 1 11/16 in. in length each, while of the seven main bearings the front one is 2⅜ in. long, the rear one 2⅝ in., and each of the intermediate bearings 1 21/32 in.

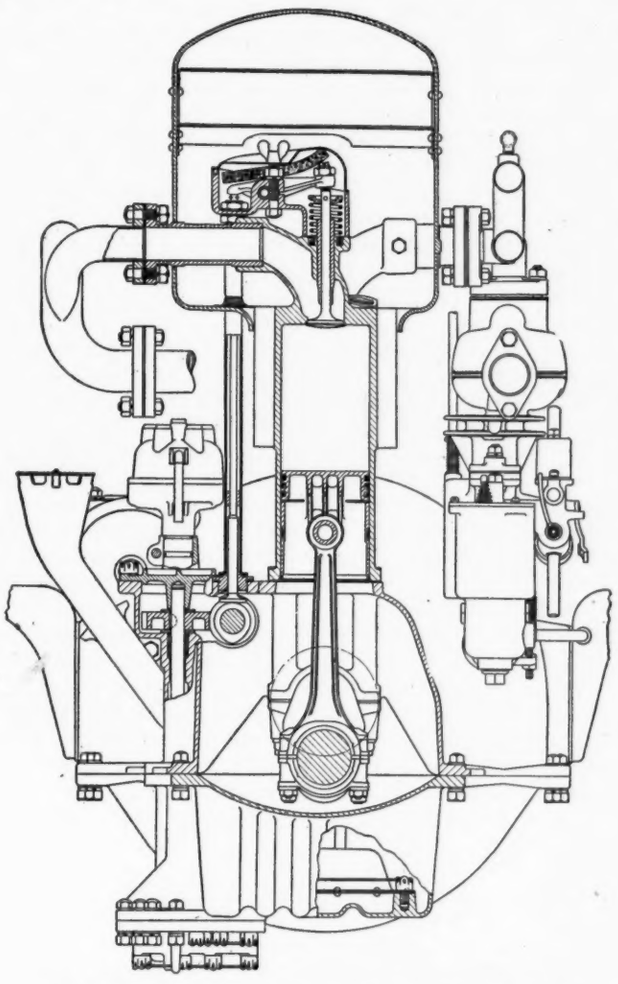
The crankcase is an aluminum casting, and, in order to insure greater rigidity, the dividing plane is now located 2⅝ in. below the crankshaft axis.

At the forward end the engine is supported by an angle-shaped, pressed steel member extending between the side members of the main frame. This support is now placed ahead of the forward cylinder instead of between cylinders Nos. 2 and 3. At the rear, supporting arms of pressed steel are bolted to the sides of the bell housing, the ends of these arms resting on top of angle iron brackets secured to the inside of the wood frame sills.

A triangular chain drive is used for the camshaft and generator. Adjustment for this drive is obtained by a pivotal mounting for the generator. The latter is bolted to the rear of the timing gear housing by means of three bolts, the lower bolt passing through a round hole in the generator flange, while the two other bolts pass through elongated holes, so that the generator can be slightly swung around the lower bolt for purposes of chain adjustment. This adjustment is effected positively by means of a setscrew between the cam gear housing and the generator body, which is locked after the adjustment is made.

There is a separate duralumin flange between the cam gear housing and the generator, on the hub of which the chain sprocket rides. This permits of removing the generator without disturbing the chain drive. A hardened plug is forced into the end of the sprocket, and a hardened plunger pressed against this plug by a spring, takes up end thrust on the shaft.

The camshaft is supported in four bearings of die cast aluminum. The cams operate against mushroom tappets from which tappet rods extend up the side of the cylinders through steel tubes, which also act as supports for one end of the rocker arm housing. The other end of this housing bears on the cylinder direct. The point of contact on the cylinder can be changed from one on the near side to one beyond the plane of the valve stems, depending upon whether the valve stem clearance is intended to increase or decrease from a cold to a hot engine. For various reasons a point was chosen that would show from zero to 0.002 in. increase in tappet clearance as the engine heats up.



Transverse section of engine. Note method of mounting rocker arm casing to compensate for effect of heat expansion in changing clearance of tappets

A rather unusual feature on passenger cars is the provision of an air cleaner of the self-cleaning centrifugal type on the carbureter air inlet. The carbureter, by the way, is cast in aluminum for the sake of lightness. The volume of air entering the cleaner is said to exceed by one-quarter the volume that enters the carbureter.

The whirling action set up by the vanes and rotor in the cleaner cleanses the main charge by centrifugal separation to the extent of throwing all of the dirt particles out into the excess one-quarter volume, which is then discharged at the lower circumference of the cleaner. This process is continuous under all conditions and requires absolutely no attention.

The carbureter is of the Franklin company's own design and is of the supplementary air valve type. Fuel enters the float chamber at the bottom through a strainer of 112 mesh wire gauze, which can be removed together with the drain plug. The settling chamber in which this strainer is located is of unusually large size. At the top of the float chamber is a so-called "tickler" which is handy for ascertaining that there is gasoline in the carbureter. The fuel nozzle contains a needle valve which is controlled from the dash, a feature which has been found on Franklin cars for several years, but the hot air and choker connections formerly used are now eliminated.

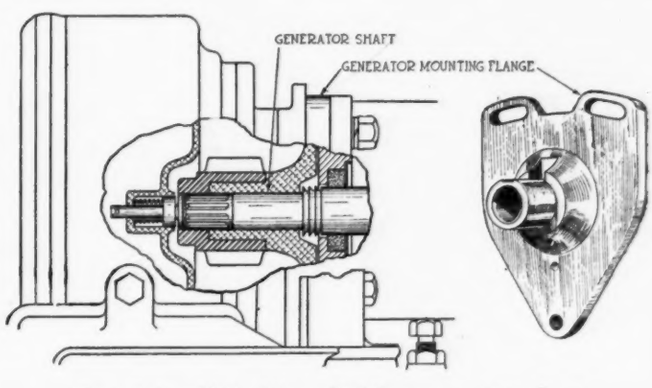
Special efforts have been made in the design of the carbureter to facilitate starting in cold weather, and to this end the gasoline is electrically vaporized and superheated.

When it is desired to start in cold weather, the throttle is first closed tight, the gasoline valve opened one whole turn and the primer button on the dash is pressed for a few seconds. It requires 40 seconds at 20 deg. Fahr. below zero. The primer button closes a solenoid actuated choker, opens the primer vapor passage, and allows 80 amperes to flow through the heater coil, which is enclosed in a special porcelain tube. One end of both the tube and the coil is touching gasoline. This forms a gray vapor or permanent gas which soon fills the suction yoke and provides an ignitable mixture in sufficient quantity to keep the car running at 18 m.p.h. for an indefinite period. At 20 deg. Fahr. below zero it has been found that the starting motor need never be applied longer than 10 sec. and will often effect a start in 5 sec. Both the old cold choke method and the partial combustion system of starting are said to frequently require the engine to be cranked for from 1½to 3 min. when starting at —20 deg. Fahr. The heating element draws 80 amp. for 40 sec. and the starter 400 amp. for 10 sec., or a total of 7200 amp. sec., as against 400 amp. for 100 sec. (40,000 amp. sec.) said to be required in other cars. After the engine has fired for about one minute at —20 deg. Fahr. the aluminum exhaust vaporizer becomes sufficiently heated to run directly from the main carbureter.

The engine receives a rich mixture from the vaporizer and fires slowly at first. The throttle valve is then opened slightly until the engine has picked up a bit. As soon as possible the gasoline needle valve opening is decreased to the running position of ⅝ turn open. During warm weather it is not necessary to use the electric primer.

Directly above the carbureter is located the gasoline vaporizer through which the mixture passes on its way to the inlet manifold. This is in the form of an aluminum casting through which there is a central vertical mixture passage with circumferentially corrugated walls, which is surrounded by a heater jacket through which all of the exhaust products pass. Into the outlet of the mixture passage is set a drawn bushing, slightly contracted at the bottom, so that any unvaporized fuel adhering to the walls of the mixture passage is separated from the main stream in the annular space between the bushing and the wall, and returned through two ½-in. steel tubes to the lower part of the gas heater, into an annular space outside a sheet metal venturi tube. At the throat of this venturi are drilled a number of small holes. The suction at this point draws the fuel, which has been vaporized during its passage down the almost red hot return tubes, back into the inlet passage.

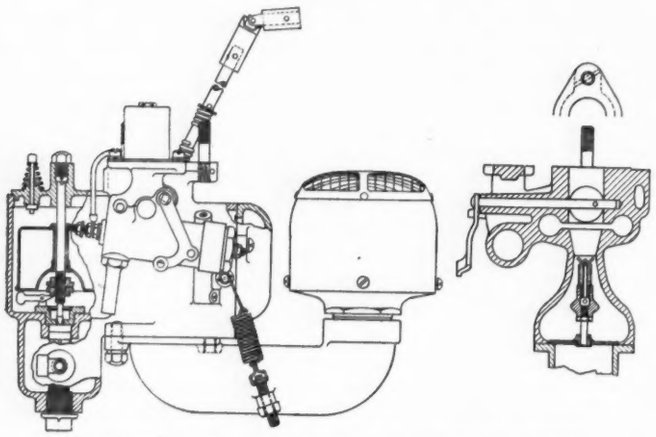
The gas heater is said to keep the temperature of the mixture very nearly uniform throughout the whole range of engine operation. Tests have shown that the inlet manifold temperature remains between 156 and 166 deg.



Sprocket which drives lighting generator is so arranged that the generator can be removed without disturbing the sprocket or chain and thus upsetting the timing

Fahr. throughout the entire operating range above 15 m.p.h. on direct drive. At lower speeds the inlet gas temperature is 15 deg. Fahr. cooler. In case all of the fuel is not vaporized on the first passage through the gas heater the unvaporized portion is trapped and recirculated.

The changes made in the carbureter design as above described have not only facilitated starting in cold weather but also increased the operating range of the engine. The carbureter is not provided with a choker valve and draws cool air at all times through the dust separator attached to the carbureter itself. This separator measures 3½ in. in diameter by 4 in. high and contains



Sectional view of carbureter, showing air cleaner used on inlet

one rotating part. It is automatic in operation and is self cleaning.

The improved Atwater-Kent closed circuit ignition system is standard equipment. The distributor, which is more accessible than formerly, is provided with an automatic advance governor to follow the special timing curve found best for the Franklin, but an auxiliary hand spark control mounted on the cowl board is provided. The engineering department has provided means for furnishing the engine with a dry gaseous mixture of uniform temperature, but is quite unable to cope with the changes of fuel and the amount of carbon that may be allowed to accumulate in the combustion chamber. The hand spark control has been added to compensate for these conditions, which are bound to come up and which otherwise would be beyond the driver's control. The ignition and lighting circuits are operated by means of a Briggs & Stratton switch on the instrument board. The electrical equipment, aside from the ignition system, consists of a Northeast generator and starter, with third brush output control for the generator and new Bendix drive for the starter, which meshes into a heat-treated steel ring gear shrunk on to the cast iron flywheel. The storage battery furnished with the car is a Willard 6-volt threaded rubber separator type having a capacity of 132 ampere hours at a 5 ampere discharge rate. All wiring is on the ground return system. The wiring consists of Flexocord cable which carries its own armoring, and has been simplified. Wires of different colors assist in tracing circuits.

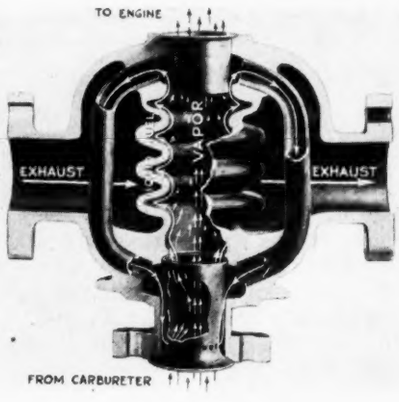
Lubrication is by the force feed system. A gear pump is located at the bottom of the crankcase and is driven through helical gears from the camshaft. From the pump, distributor plate oil leads extend to all of the seven main bearings and to the front compartment. A change which has been made from the systems as installed on the previous model consists in retaining all piping on the upper half of the crankcase, with holes extending from the pump distributor through holes in the case gasket to the inlets of the various leads. The crankshaft is drilled to permit of forcing oil under pressure to the crankpin bearings, while the spray from these bearings is depended upon for lubricating the camshaft and cylinders.

The lower flywheel guard has been eliminated, thus increasing the full load ground clearance 25 per cent.

A Borg & Beck 10-in. plate clutch is fitted, but the Franklin company uses its own three-speed gearset fitted with standard S.A.E. shift. The tire pump is now driven off the idler in the gearset. Instead of stub teeth of 6-8 pitch, full depth 6 pitch teeth with a 20 deg. pressure angle are now used in the gearset, the latter having been found to reduce the noise of operation. The low gear ratio has been changed from 3.15 to 3.625. The gearset housing is of aluminum. An improved rocking pin ball-handled lever is used for operating the gears and a Yale lock is now incorporated. This is so arranged that a tongue is forced down between two steel balls and shifts them into slots in the shifter rods, so that the gearset can be locked in either neutral or reverse. The brake and clutch pedals are now mounted on the bell housing.

Back of the gearset is located the transmission brake, and an oil collector is provided to prevent oil from the gearset getting on to the friction surface. A shield has also been fitted to prevent water from getting on to the brake band. Two Spicer universal joints are combined with a Franklin tubular propeller shaft of nickel steel to form the connection between gearset and rear axle. The propeller shaft is 1⅛ in. in outside diamater and has a wall thickness of ⅛ in. It is made from 5/16 in. walled tubing and is turned down in a lathe on the outside between the end portions, which are later splined.

The rear axle is of the semi-floating type and is provided with an underrunning truss. The axle housing is built up of a cast aluminum center part and nickel steel tubes with slightly tapered ends, which are pressed into the aluminum housing and hot riveted in place. The spring saddle, brake brackets and bearing housings are all drop forgings. The axle is fitted with Gurney ball bearings



Sectional view of fuel vaporizer. The liquid fuel trapped on the walls is vaporized by passage through the hot tubes and then returns to the air stream

of a type capable of taking thrust loads equal to their radial load capacity. The emergency brake is actuated by a cable which is readily adjusted for length by removing a pin and pulling up to next hole.

The front axle is of the regular Franklin tubular type with drop forged spring saddles. The new car has a 115-in. wheelbase and the standard 56-in. tread. It is fitted with full elliptic springs, of which the rear ones are 38 in. in length instead of 36 in., while the front ones remain 36 in. long.

Chassis points requiring lubrication are provided with connections for applying grease or oil by a pressure gun.

There has been no change in the steering gear and the weight of the whole car remains practically the same as before, 2450 lb. The tire equipment consists of 32 x 4 in. Goodyear cord tires, with all-weather tread for all four wheels. A spare tire carrier is provided at the rear.

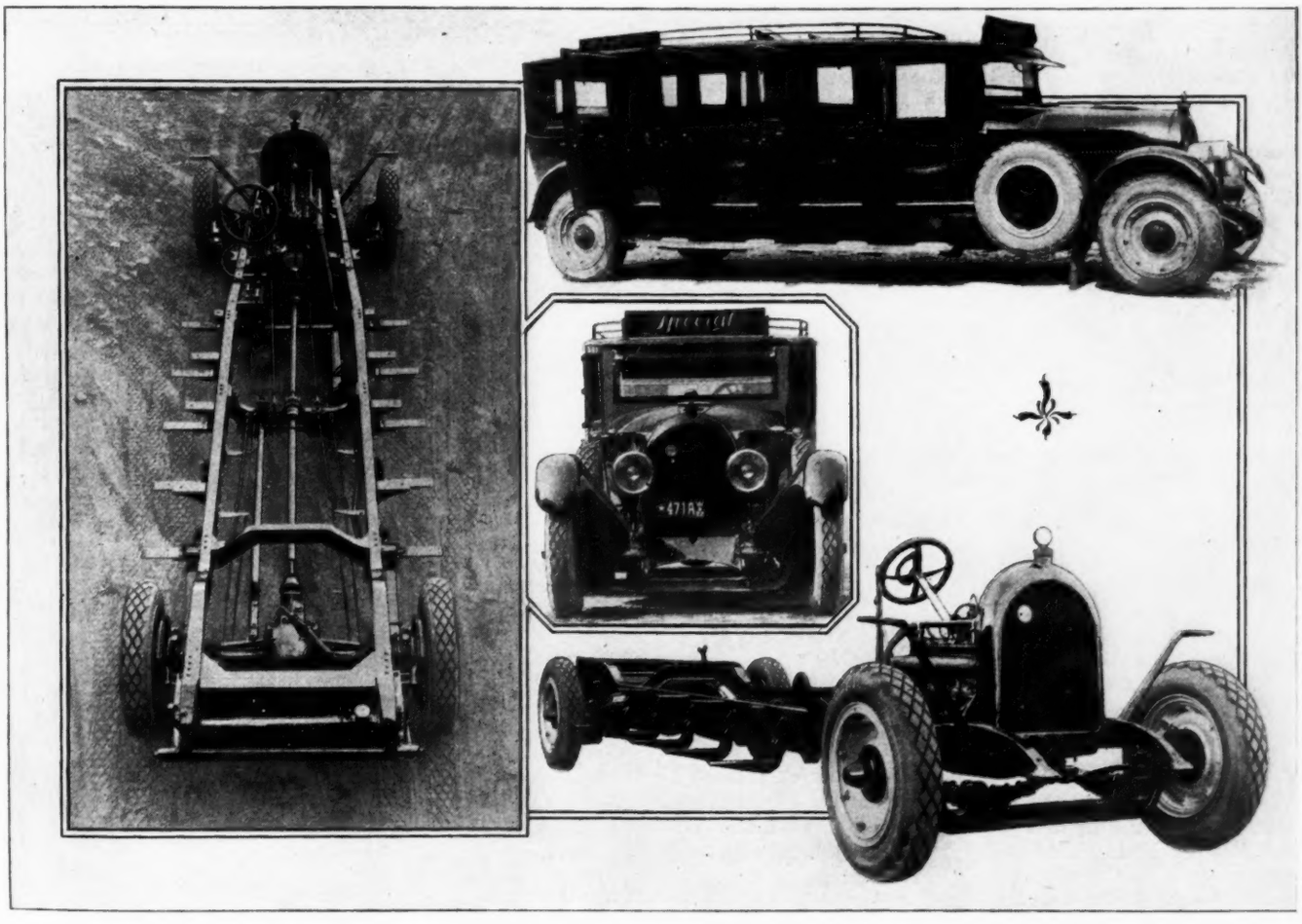
Kissel Producing 18-Passenger Coach

Is among first passenger car builders to enter bus field. New chassis has 202 in. wheelbase and 66 in. track. Axles and frame special. Latter has 8 in. side rails with kick-up front and rear. Four-joint propeller shaft and double-reduction axle employed.

THE demand for easier-riding buses has led the Kissel Motor Car Co. to enter the bus field with a new vehicle built along passenger car lines but designed to carry eighteen passengers. The new product, to be known as the Coach Limited, is said to provide the riding comfort of a sedan and is, except for size, similar in most respects to a closed car. This type of vehicle has been turned out by other manufacturers, chiefly builders of trucks, but the Kissel company is believed to be the first, or among the first, passenger car builders to turn out a bus chassis.

The engine used is a Kissel six, 3 5/16 x 5½ in., said to develop 61 hp. at 2300 r.p.m. A multiple disk clutch and three-speed gearset complete the unit powerplant. The latter is connected to the rear axle by a two-piece propeller shaft fitted with four metal universal joints. The center joint is supported in a self-aligning bearing in a bracket bolted to a heavy cross-member of the frame.

A stiff frame with side rails of ¼-in. stock 8 in. deep is employed. This is provided with five cross-members and is 43 in. wide. Each side rail carries five step brackets, arranged to support the running boards, and out-riggers for the body which measures 76 in. at the widest point. The side rails are kicked up over both front and rear axles.



Four views of the Kissel "Coach Limited," a de luxe type of bus. Note the type of frame employed, with front and rear kick-up, also the four-joint propeller shaft with bearing on central cross member, and the front axle with unusually large drop. The body is arranged to seat 18 persons including driver, and the roof is constructed to carry 1000 lb. of luggage

The double-reduction rear axle has a cast steel housing arranged for 48-in. spring centers and 66-in. tread. The final reduction is 6.33 to 1. Total reductions on low gear are 23.16 to 1, second gear 11.45 to 1 and reverse 28.99 to 1. The front axle is a conventional type of drop-forged I-beam section, but has an unusually large drop. It has 30-in. spring centers and 64-in. track at ground. All springs are semi-elliptic type and are 2½ in. wide. Those in front 38 in. and those in rear 60 in. long. A Ross screw-and-nut type of steering gear is employed. All brakes are on the rear wheels and have 2½-in. facings. The foot brake measures 17 in. and the hand-operated brake 12 in. in diameter. Wheels are a special aluminum disk design and are arranged to take 32 x 6-in. pneumatics all around. The wheel base is 202 in. When loaded the top of chassis is 22½ in. from the ground.

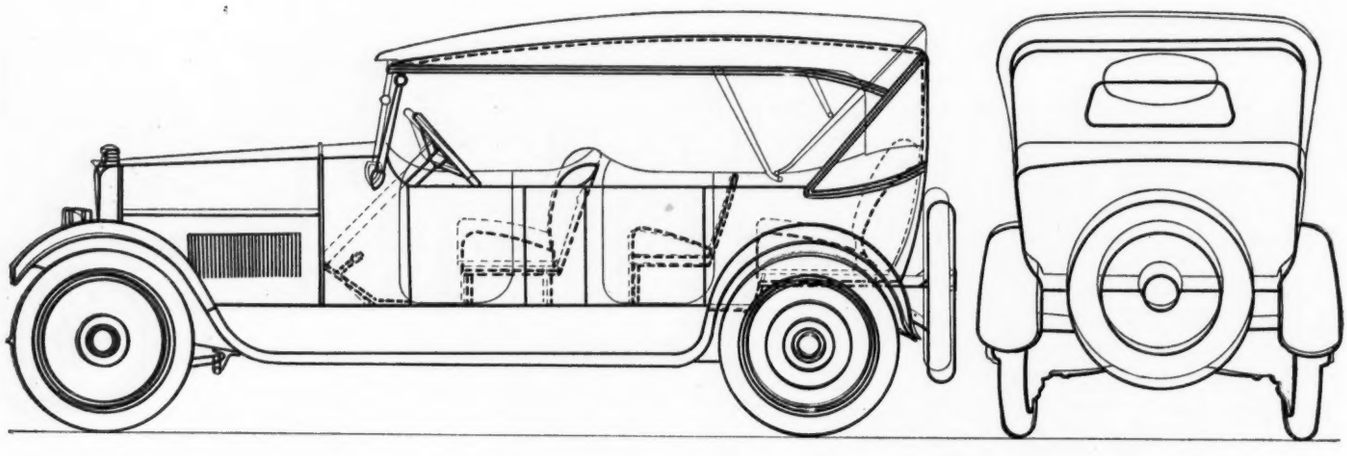
There are two gasoline tanks. That in the rear of the chassis holds 30 gal. while the emergency tank under second seat holds 9 gal.

The chassis is said to weigh 4850 lb. when light or 5120 lb. when filled with fuel oil and water. With body the weight is given as 7780 lb.

The body is fully inclosed, and, except for its unusual length, has much the same appearance as a sedan. There are four doors on the right side. The three-ply veneer roof, fitted with a rail, is designed to carry 1000 lb. of luggage. The length of the body is 194½ in. and the highest point is 79¼ in. from the ground. A special device for locking or releasing all four doors from the driver's seat is provided.

The seating capacity is 18, including driver. There are five cross-seats, designed to conform to the back and to give unusual comfort in riding. The seats as well as the entire interior are covered with Spanish leather. The windows are large and are arranged to be lowered when desired. Ventilators are provided in the roof and Perfection heaters, for winter use, in the floor. There are also eight dome lights in the ceiling.

Body Lines of New Marmon Seven-Passenger Phaeton Compared with Former Model



These drawings are taken from promotion literature sent to dealers by the Marmon factory. They illustrate an excellent method of visualizing new body lines as compared with the old. One glance at these outline drawings gives a clearer picture of the changes in the new Marmon bodies than ten pages of description could do. They are of interest, too, in picturing the trend of practice in modern body design

---

Demonstration of Landing with Skid

ON Aug. 21, in the presence of Brigadier-General William Mitchell, assistant chief of air service, and Majors P. D. Milling and Walter Weaver, commanding officer Mitchel Field, a demonstration of landing with skid took place at the Sperry Field, Farmingdale, L. I.

The machine flown was a U. S. Air Service messenger bearing a combination wheel and skid landing gear designed and manufactured by Lawrence B. Sperry.

While in flight Mr. Sperry released the entire wheel and landing gear so that it fell clear of the airplane, thus relieving the craft of extra weight and interference. He then made a perfect landing, bringing the machine to a dead stop 50 feet from the place where the skid first struck the turf.

This is declared to be a remarkable record, and to open new possibilities for the landing of planes in spaces as small as the average tennis court.

It also facilitates operations over water and rough stretches of country where landing would otherwise be unsafe or impracticable.

How the Delco Plant Cut Unit Production Costs

Careful time studies, simple wage system, maintained piece rates and development of responsibility on part of individual worker responsible for materially decreased costs. Wages 75 per cent higher than prevailing union rates. Unit costs extremely low.

By Harry Tipper

THE great ambition of every production manager is to reduce production costs per unit of product, without getting into expensive wage disputes, interruptions in production itself, or poorer quality of work.

Out at the Delco plant of the General Motors Corporation in Dayton, they have succeeded in making a considerable reduction in the general cost per unit of production, while the workers are able to earn almost as much as they did during the peak of prices and the quality of the product has improved during that time.

The story of this development shows how essential to improvement in production is a careful consideration of small matters and a thoroughly nurtured spirit of organization and fellowship.

The plant of the Dayton Engineering Laboratories Co. is well lighted, well arranged and cared for. So are many other plants. There are very few special machines and not many new applications of general equipment. The departments of the factory are arranged with proper consideration of the movement of the fabrication and the progress of product from point to point has been carried out as well as location of plant buildings will allow.

Obviously this is no ideal plant, theoretically perfected in the mind of an engineer, as mechanically without waste of space and motion. It is an excellent example of sound development in factory building, where the problem of manufacture has increased in size and complication with considerable rapidity since the beginning of its work.

Plant Has No Unusual Advantages

THIS is one of the important points in the story of the production efficiency secured. There are no unusual advantages which place the organization outside comparison with other plants in the automotive field.

The manufacture of the product calls for a number of different jobs all through the plant. The ignition system for each automobile manufacturer demands its own tooling, set up and progress through the fabrication.

Despite these facts, the records show that the average earnings of the workers at this plant are almost, if not quite, as large as they were in 1919-20 and 75 to 80 per cent above the average union rates of to-day in that section. The records also show that in spite of these excess earnings, the cost of production has gone down.

The factory is largely run in departments, although some of the assembling processes are run entirely on the progressive and not the departmentalized system. The shaft making, screw machine, punch press, molding and other departments are laid out so that their work can be related to the sub-assemblies with the least possible difficulty. These departments work from stock into stock. A good deal of the electrical work is run on the progressive plan, the material coming out of stock and going through the different operations to assembly.

Items of Greatest Interest

THE interesting features do not lie in the plan of the factory or the character of its equipment so much as in the methods employed and the thorough organization behind the methods. The outstanding items of interest are:

(a) The plant is run on a larger percentage of piece work than any plant we know of covering a similar variety of operations.
(b) The wage system is so simple that any worker can check his own earnings at any time.
(c) The rate provides much higher earnings than day rates of union scale for an average skilled worker.
(d) The time study system brings the workers into agreement with the result of the time study by the time the studies are made. Once a rate has been developed by time study, the rate stands for a year, unless the operation is changed. Each time study includes a proper allowance for fatigue.
(e) Provisions have been made for rapid and definite review of grievances so that they are not allowed to fester.
(f) The employment office hires the help, follows the records of the worker, transfers where necessary, reviews grievances, conducts educational activities, reviews discharges or changes and takes the lead in many other affairs.
(g) All athletic and social developments are in the hands of the employed from the beginning. Nothing is provided by the concern although many things are made possible by the encouragement and backing of the company.
(h) The turnover is very low—the shop is open.
(i) There is a constant spirit of watchfulness for the opportunity to increase the efficiency of each operation or any piece of equipment.

The story of the piece work development is contained in the work on time study and wage system. It is a story of careful and patient examination into the conditions of each department and each operation, backed by a study, at least as conscientious, of the worker's desires and the working conditions.

The cards were always on the table. The feeling between the superintendent, supervisors, foremen and men

There has been a little chance for misunderstanding in the matter of our rates. For some time we have been going into this matter very thoroughly with the idea of working out means whereby this matter could be put upon a more satisfactory basis.

The elements which we have considered of first importance are these:—

1. The greatest possible fairness to the man on the job.
2. The greatest possible simplicity.
3. Adoption of the best means to insure accuracy in setting prices and in keeping records.

Now we feel that we have arrived at a plan which meets these requirements and because we recognize your right to a full explanation of any action that affects you, we want to put the matter before you as frankly and as clearly as possible.

RATE SETTING

Our method of rate setting has been to let a tryout man perform the operation and as a result of his experience a rate or price has been set. Now we want the operators themselves to perform the work which forms a basis for the price making. The procedure will be this:—when we are ready to set a price, an operator with the necessary equipment will perform the operation. A rate man will work with him and may make such suggestions as seem wise to him. If a machine can be speeded up or an unnecessary motion omitted it is the rate man's business to point it out, unless the operator beats him to it. The tryout will extend over a sufficient time to insure fair price setting. The idea is that by this sort of co-operation we can arrive at the fairest possible basis from which to set the rate.

The rate man will make a careful record of the time required for each part of the operation, using a stop watch for this work in order to analyze the operation as closely as possible.

After these tests have been made you will appreciate the fairness with which allowances are made in the setting of the price for the job.

The rate will be set for the benefit of the average operator. If you are above average you should benefit accordingly. If you are inexperienced on the job your day rate is guaranteed.

The rate man is under strict instructions that his first consideration must be fairness to the man on the job. In serving your interests he is best serving those of the company.

SCALE OF PAYMENT

All prices set in future will be in direct proportion to the number of good parts produced; in other words, payment will be made upon a piece work basis.

This is done because we feel that it is fair to the man on the job; because there is no chance for misunderstanding, and because of the simplicity of the plan.

DAY RATE GUARANTEE

In connection with all prices established in future, the day rate is guaranteed. If an operator is inexperienced on a new job, or if for any other good reason, he does not make the required number of good parts required for a piece earning in exceess of his day rate, the Company will bear the loss, and the least a man can earn is the amount represented by his day rate.

PRICE GUARANTEE

No price will be cut within one year from the date of tryout for any reason except a change in material, tools or process. A change in the speed or feed of a machine will not be the basis for a cut.

A price may be raised at any time when good reasons are shown for such action.

All prices are subject to revision after they have been in effect for one year.

Do not hesitate to earn all you can. The Company's wish is to get as many parts and to build as much apparatus as possible—not to reduce fair earnings.

We want every one of you to feel that there is nothing mysterious about this entire rate proposition. We are making it a square-deal proposition. The cards are all on the table—face up.

We know that we can depend upon your co-operation.

You may, if you wish, obtain a copy of this Instruction Sheet from your foreman and if any part of it is not perfectly clear, he will explain it to you.

LOUIS RUTHENBURG,
Superintendent.

Delco instruction sheet

permitted the most effective informal and formal discussions of matters at issue, so that there was little opportunity for the worker to become suspicious of the study or the developments.

Bonus System Formerly Used

UP to 1916, the wage system was a bonus system which Mr. W. B. Baker, the employment manager, indicated was sufficiently complicated to make him stop to think it over, if he had been away from the calculations for awhile. Of course, this is no new thing in bonus systems. Many of them have been too complicated for the worker to check up at any time. Such a system breeds suspicion because the worker's calculations of his earnings will disagree with his pay envelope from time to time and the explanation of the difference will not be visible to him. He will be inclined to believe that there is some juggling somewhere when he cannot see the reason. This old bonus system was discarded at that time and the new system introduced. Every production man knows the difficulty attendant to the introduction of any change in the system of payment in a factory. All such moves are suspected immediately and that suspicion must be disarmed if the job is to be put over without disrupting the production.

Thorough explanation to the worker, open methods of taking the time study, tests, and full consideration of all possible points of question, were mainly relied upon to enable the management to put the matter through. The piece work price is based upon a time rate and the time required for the operation as the result of the time study. The time study includes the allowances for delay and fatigue which are worked out as a percentage addition to the study. Once the time study has been worked out the operator is able to determine his pay quite easily from the piece price and the number of pieces produced and passing inspection. Each operator is provided with his go and no go gages, so that he can inspect his own work before it passes on to the regular inspection routine.

The number of different jobs passing through the Delco factory is considerable, and the piece work arrangement required a good deal of care in its working out so that these many changes could be made without difficulty.

For many of the departments the transfer to piece work required a good deal of original research, as these departments do not work at piece work, even in factories usually called piece work factories. In the Delco plant, piece work obtains in the automatic department, with the result that one man will operate five machines, whereas the average is from two to three machines per man.

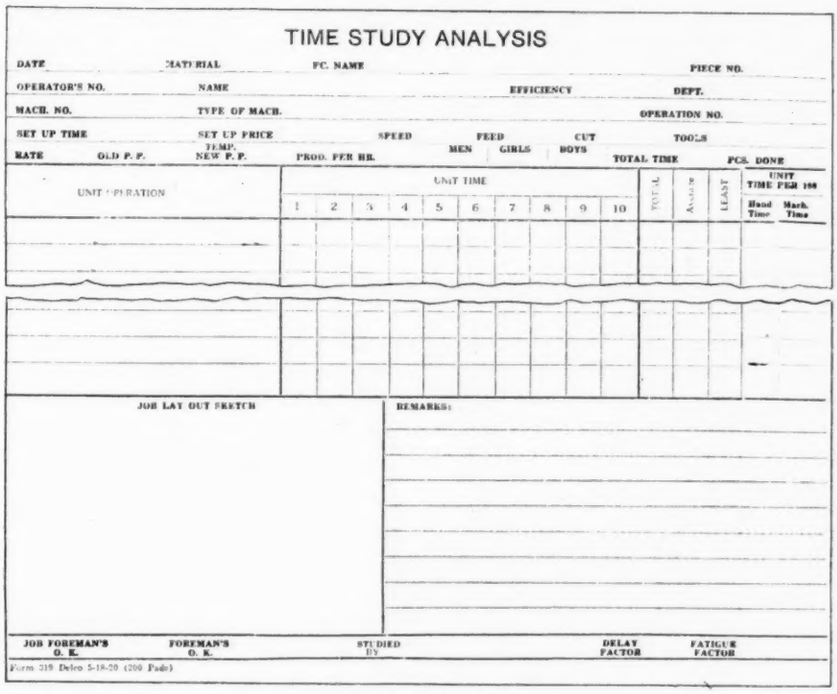
PERHAPS the most unusual application of the piece price is for the operators in the heat treating department. This is the first instance that has come to our attention of such a wage system obtaining in the heat treating work.

The wage system in this plant possesses the following important elements:

(a) A piece price based upon a time rate and the operating time.
(b) A time study which is open, can be checked by the workers and covers a fair average probability.
(c) Allowances for delay and fatigue made in the time study itself.
(d) Payment for idle time, beyond half an hour.
(e) Payment for overtime on specified increases of time rate.
(f) A guaranteed day rate for all employed who may not be able to make the piece rate for any reason.

As we have stated, the percentage of piece work in this factory is over 90 per cent. This piece work provides a much higher earning for the average individual than the rates required by the union scale in Dayton. In the molding department of the foundry, for instance, the union rates for the day for machine molding is $5.30, whereas the earnings in the Delco foundry run as high as $9 and $10. On the other hand, the average pace in day work in the union shops is about 40 flasks a day, whereas the production in this particular foundry runs as high as 80 flasks a day, so that the cost of the production is considerably less.

In the tool-making department the cost of tool making on the rates obtaining was a good deal higher than outside costs, when the union rate dropped from the high peak. Mr. Hughes, the supervisor of this department, called his men together and told them about the cost of production, and also the fact that the amount of tool work in the plant itself depended upon the ability to produce tools within the plant for a price which was in line with outside costs. The matter was gone into very thoroughly and it was indicated that the management did not want to reduce the rate and would not reduce the rate if the cost of production could be reduced. The net result of this was that the tool workers went to work with such capacity and energy that the making of tools in the plant itself dropped very speedily to a comparison with outside plants and to-day the tools are being made with less expense per unit of operation than in plants on the outside.


TIME STUDY ANALYSIS

DATE | MATERIAL | FC. NAME | PIECE NO.
OPERATOR'S NO. | NAME | EFFICIENCY | DEPT.
MACH. NO. | TYPE OF MACH. | OPERATION NO.
SET UP TIME | SET UP PRICE | SPEED | FEED | CUT | TOOLS
RATE | OLD P. P. | TEMP. NEW P. P. | PROD. PER HR. | MEN | GIRLS | BOYS | TOTAL TIME | PCS. DONE

UNIT OPERATION	UNIT TIME 1	2	3	4	5	6	7	8	9	10	TOTAL	AVERAGE	LEAST	UNIT TIME PER 100 Hand Time	Mach. Time

JOB LAY OUT SKETCH | REMARKS:

JOB FOREMAN'S O. K. | FOREMAN'S O. K. | STUDIED BY | DELAY FACTOR | FATIGUE FACTOR

Form 219. Delco 5-19-20 (200 Pads)

Time study analysis

The two or three important features to be considered in this piecework rate as established in the Delco plant should be of very considerable interest to engineers and production men in other plants in the industry. The form which is used for time study shows the introduction of the delay factor and the fatigue factor in connection with the time study itself, so that the pace set will be one which can be continued without undue fatigue and without introducing a number of small difficulties arising from slight delays. This is a very important element and these factors permit an allowance which will be subject to correction after the time of the guarantee is over, if they are found to be excessive, without disturbing the time required for the actual operation itself, and on a basis which will indicate their justice to the worker.

THE second important feature is the guarantee day rate for all employees who cannot make the piece work rate. Some sort of a guarantee of wage is necessary for the less efficient employees. The more efficient employee is not concerned with the guarantee, because he knows that he is capable of doing a sufficient amount of work to make more than his daily rate in his operations. Where the employee is less efficient, the guarantee operates to stabilize the efficiency, so that the average amount of production is higher than when all the employees are dependent upon the piece work rate. Apparently, also, it has operated to reduce the number of employees taking advantage of the guarantee day rate, because the piece work operations include 90 per cent of the total direct factory labor which, itself, is a very large percentage to be acquired in any factory following a number of different jobs with the varied types of operation required in this plant. The allowances for idle time at the day rate are quite important.

One of the very great grievances in the present coal strike is the amount of idle time which the miner must suffer without securing any compensation therefor. A number of contingencies arise in manufacturing work, particularly where there are a variety of operations and a number of different jobs going through the plant; which make it impossible for the operator to continue on with the work at all times and make it necessary for him to be idle from causes beyond his control or the control of the particular department in which he is working. These contingencies make a reasonable idle time payment very necessary if the plant is to be operated justly from the standpoint of the worker's opportunity to earn. The economic value of this is indicated in the net results secured in this plant, where the average earnings are high and the average cost of production per piece is low.

This factory enjoys a very low turnover of labor, so low that the percentage of turnover in the year is almost incredible from its relation to the ordinary practice. Turnover, as it stands to-day, is approximately less than 40 per cent per year, as compared with the turnover of from 150 to 300 per cent in the average factory operating in the metal trades.

In the rapid growth of the automobile business there is a tendency for the worker to roam from one job to another, and this tendency is illustrated by the high average turnover in cities like Detroit and Cleveland in the skilled trades required in metal trades factories. Evidently a very large proportion of the workers in the Delco organization are citizens of Dayton remaining at their work in the plant and forming a desirable and definite part of the community life in the city of Dayton itself. This is very important in its influence upon the efficiency of the plant and the possibility of maintaining an open shop.

Reducing Size of Combined Ignition and Lighting Systems

European practice offers suggestions. Innovations frequently impractical in production. Some successful magnetos have not been redesigned since 1910. Drawings show wide range of practice.

By Fred J. Hoffman

CONSIDERING the big strides that have been made in reducing the manufacturing cost of motorcycles, it should prove interesting to survey the ignition and, incidentally, the electric lighting equipment of these machines. Innovations are constantly being announced, but to the advanced student they very often reveal themselves, upon investigation, as mere readaptations of previously discarded fitments. Looking carefully into the subject and scrutinizing the designs brought out, one is led to predict a new era of increased use of electrically operated components. Some of the developments embody novel and practical ideas and conceptions, yet one should be on guard not to over-estimate their possible influence on the industry.

At the present time there is a demand for a combined ignition and lighting plant that is compact and self-contained. However, the development of such a unit within the space heretofore occupied by the magneto alone is a most difficult task. Combining the main features so well developed in the separate machines, in a single unit, is a problem that requires a thorough knowledge not only of past and present methods and trend of accepted theories of ignition, dynamos, batteries, etc., but also of motorcycle manufacture, performance, etc., the whole backed up by practical experience. A mere superficial knowledge of the subject and common intelligence are of little help. This assertion is substantiated by the large number of lighting devices already introduced which stand very little chance of commercial success. In the writer's opinion the separate unit machines, that is, a magneto and a dynamo jointly driven, will be the favored systems of the future. The construction which probably ranks next in

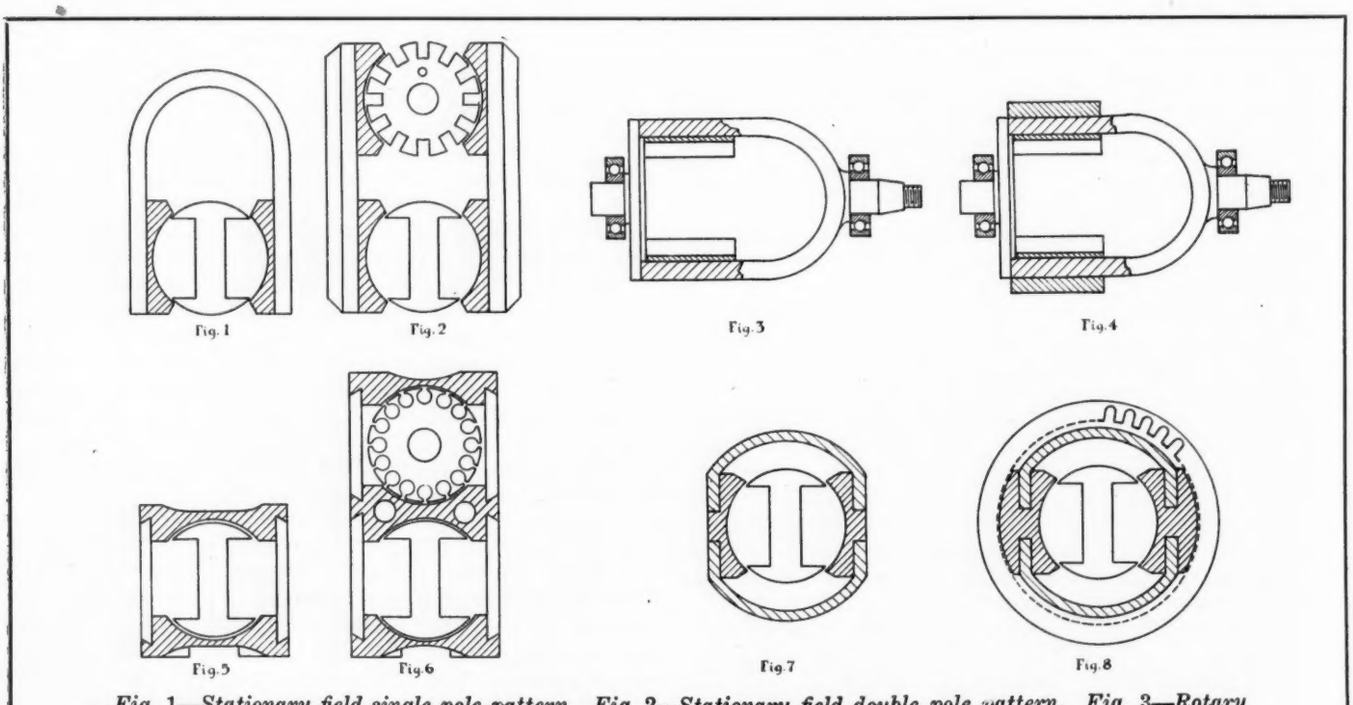


Fig. 1—Stationary field single pole pattern. Fig. 2—Stationary field double pole pattern. Fig. 3—Rotary field single pole pattern. Fig. 4—Rotary field double pole pattern. Fig. 5—Stationary consequent single pole pattern (Cobalt). Fig. 6—Stationary consequent double pole pattern (Cobalt). Fig. 7—Stationary consequent, single pole field circular pattern (Cobalt). Fig. 8—Rotary consequent double pole field circular pattern (Cobalt)

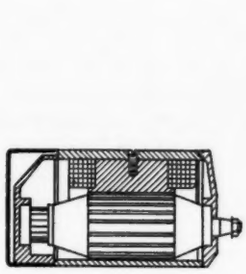


Fig.9

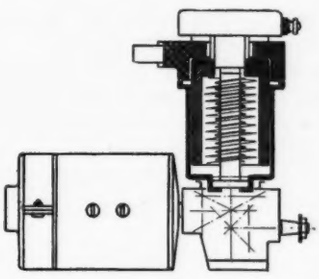


Fig.10

Fig. 9—Lucas Co. dynamo with eccentric armature for belt drive. Fig. 10—Sparxlight Co. dynamo with rotary coil and contact breaker mounting

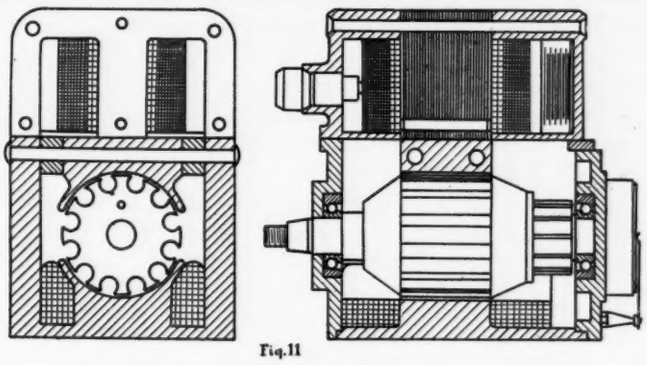


Fig.11

Fig. 11—Dynamo with timing arrangement on armature shaft and stationary coil (Nat'l Coil Co.)

value is that which uses the engine flywheel as an interrupter of the magnetic balance and as a carrier of certain component parts that make up the whole ignition and direct current generating portion. In other words, the flywheel is built as a magneto and generator.

The high tension magneto with its ordinary H pattern Siemens double wound rotary armature seems still to hold the lead. Experience in manufacturing this type of inductor with transformer coils has led to such a high state of development that it must be an epoch-making invention indeed that could displace it altogether, notwithstanding the fact that from the standpoint of electrical efficiency it is one of the worst devices ever built. Certain innovations and improvements in the way of ignition equipment have been brought out of late, yet it is by no means certain that the labor spent on them will bear fruit. This can be substantiated by the fact that standard magnetos which stand out as first class examples of 1910 design are still being manufactured unaltered. Much of the research work has been in relation to the composition of the steel used for the field magnets, and in this connection the cobalt may be mentioned.

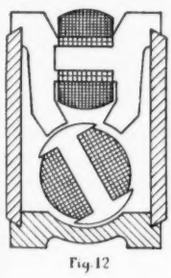


Fig.12

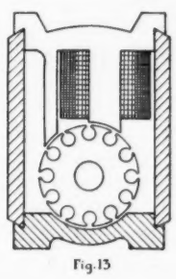


Fig.13

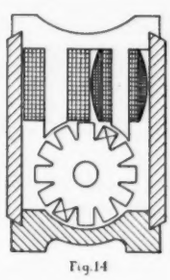


Fig.14

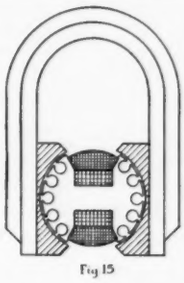


Fig.15

Fig. 12—Single field dynamo with rotating Siemens armature and stationary coil (Smith & Co.). Fig. 13—Single field combined dynamo and coil stationary (Morris, Lister & Co.). Fig. 14—Pontois single field stationary d. c. winding and ignition coil, inductor type. Fig. 15—Horseshoe pattern permanent field combined H armature with H. T. winding and low tension multi pole armature (E. Harrison)

Position of the Magnetic Field

One of the most interesting features of igniters constructed on this principle is their diminutive size. However, magnetos of very nearly the same size are manufactured with ordinary material.

Another item that has aroused the imagination of the designers is the position of the magnetic field and its functions in relation to movements.

However, the work done along this line is also of doubtful value, for unless it can be shown positively that losses due to multiple airgaps, which can hardly be eliminated in such constructions, are reduced or, better still, entirely dispensed with, the innovations will have little appeal. It makes little difference whether the exciting field is of open or closed, stationary or rotary construction, so long as the ratio of weight to working output remains unchanged. It is well known that the permanent field is very far from comparing favorably with the electro-magnet.

Fitting a direct current generator to motorcycles for lighting and charging purposes together with a magneto ignition system, or using the generator for charging an accumulator and then firing the engine by means of a stationary induction coil, is not a new idea, and only the more extensive use of such systems on motor vehicles has brought up this question in connection with motorcycles as well. Though the system of ignition by coil and storage battery in conjunction with a dynamo generator is a little more complicated on the single tracker, its general adaptation stands some chance of success. But there is no question that the details must be worked out differently.

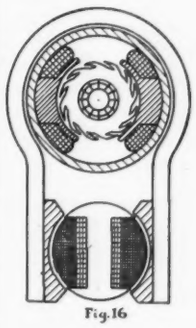


Fig.16

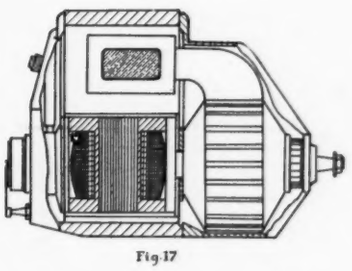


Fig.17

Fig. 16—Lucas Co. independent dynamo and H. T. magneto in one unit arrangement, gear driven. Note the uni-directional armature slots. Fig. 17—H. T. magneto and dynamo single drive (Renault Frères)

Under the heading of combined ignition and lighting devices we can establish the following subdivisions:

1. Dynamo for charging only.
2. Combined dynamo and rotary coil.
3. Combined dynamo and stationary coil.
4. Combined dynamo and magneto.
5. Single unit magneto-dynamo.

No. 1 is probably the least favored, on account of the difficulty in fitting such a generator to any and every make of machine irrespective of year of manufacture.

No. 2, the combined dynamo and coil, is little known. This combination consists of a revolving coil with contact-maker attached and a dynamo, both positively driven and, of course, timed to the cycle of explosion. The dynamo provides current for the storage battery, and this in turn feeds the coil.

No. 3, the combined dynamo and stationary coil, is a similar combination of ignition and charging design but has the contact maker on the dynamo. It has to be of a slightly larger size than the generator usually employed, the reason for this being the lower speed. Otherwise there is scarcely any difference, and the function is the same. The manufacturing cost of No. 3 is slightly lower, and for this reason its commercial changes are somewhat better.

No. 4, the combined dynamo and magneto, each machine a self-contained and independent unit, is probably the ideal system. The application of two already standardized units is very much favored, for the reason that it involves no radical features, and is easily understood by every user and repairer. There are some minor drawbacks, such as the necessity for gearing, etc., but with the proper care these parts can be made quite efficient and fool proof.

No. 5. At first sight the single unit system seems to meet all the requirements and possess all of the features of any combination yet described, but this certainly is not a criterion. The simplicity resulting from the absence of gearing is no doubt an advantage, but, on the other hand, it must be remembered that one armature carries the d. c. charging and lighting winding and also the alternating ignition coil, and a breakdown means a total failure of the engine and the illumination. Duplex windings are not so safe as two separate individual constructions and, therefore, though the basic principle is correct, the manufacturing difficulties make the advantage dubious.

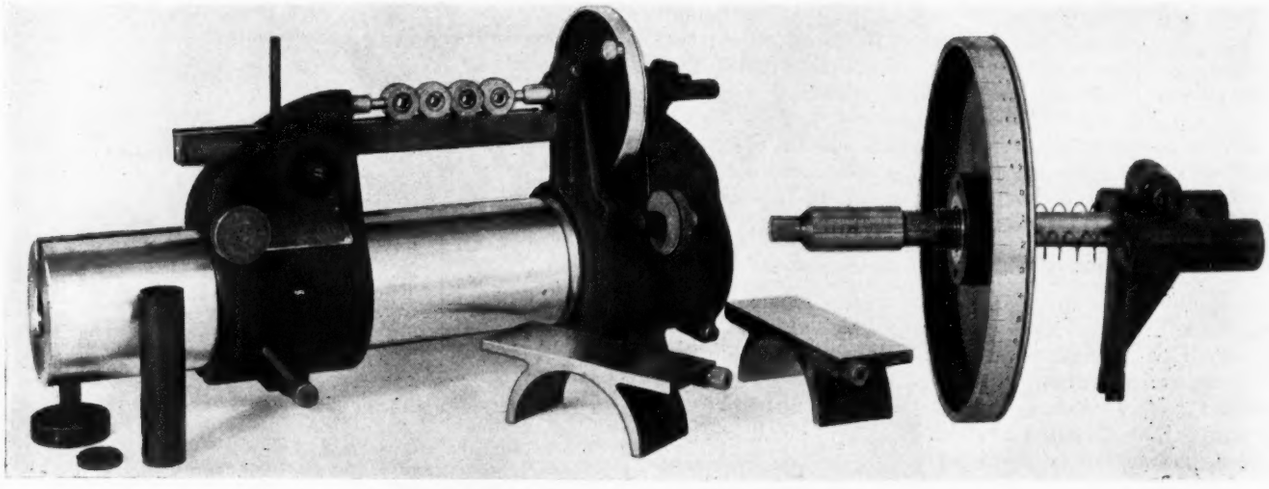
Super-Micrometer a New Precision Measuring Instrument

A NEW precision measuring instrument termed the Super-Micrometer and said to be capable of making measurements to the nearest ten thousandth of an inch has recently been placed on the market by the Pratt & Whitney Co. It is simple and rugged, being designed for use on the inspector's or toolmaker's bench. As will be seen by the accompanying cut the instrument consists of a rigid cylindrical bed, a dividing head, and an adjustable foot stock. The screw has a working range of ½ in., graduated by 500 1/32 in. divisions on the periphery of the duralumin index wheel. Means are provided to take up wear or slight errors in lead, while springs take up backlash and maintain a constant pressure on the thrust bearing. The foot stock can be moved into position by a rack and pinion and is then securely clamped in place.

The index wheel is revolved by a fine round belt, the slipping of which enables the operator to apply the same pressure to the anvils each time a measurement is made. Variations in belt tension do not affect the accuracy, inasmuch as the pressure applied is the same as when the zero setting is made against standard inch blocks, prior to using the machine. The latter has a range of 8 in. between anvils.

THE Portuguese West Africa government has appropriated $56,000 for the purchase of light passenger cars, motor trucks and motorcycles for use by the federal government, the automotive division of the Department of Commerce has been advised.

Bids for light types of passenger cars and trucks will soon be opened by the authorities at Angola. Only light automotive equipment can be used because of the roads in the provinces.



The Pratt & Whitney super-micrometer

British Standardize on American Nomenclature

Engineering Standards Association issues report which favors use of terminology long since standardized by S. A. E. except in cases not likely to be generally used in Great Britain or where its use might involve confusion with other parts used ignored to date.

By M. W. Bourdon

AN interim report recently issued by the British Engineering Standards Association deals with the nomenclature of automobile parts. There are certain sections as yet uncompleted—body-work, accessories, ignition apparatus and electrical equipment—but otherwise the chassis is dealt with pretty thoroughly.

The following main principles have been observed in the preparation of this report, which has the official recognition and approval of Government Departments as well as of Automobile Engineering Associations:

(a) Established conventional names have been adopted as far as possible; the terms which are suggestive have been used to aid memory; and brevity has been observed wherever possible.

(b) American terms standardized by the (American) Society of Automotive Engineers have been adopted, except in certain cases where there is no likelihood of these terms being generally used in Great Britain or where their use would involve confusion with other parts.

The word "bush" is used to indicate a removable and renewable lining in a plain bearing. While this is in accord with convention when the lining is a complete cylinder, it is a distinct departure from established practice to term a split liner a "bush"; the renewable portion of a connecting rod big-end is, for example, called the "connecting rod bush" in this report. Quite legitimate, no doubt, and possibly better than merely "bearing" or "bearing liner"; but likely at first to cause some confusion with the wrist pin bush—this pin, by the way, still being called the "gudgeon" pin.

The gasoline tap is called "fuel valve"; the term "accelerator pedal" is definitely adopted, and "valve spring seat" indicates the part usually termed valve spring washer or cup in England, but otherwise there are no variations of note in connection with the engine.

PLATE clutch is standardized as meaning the type with one plate clamped between two others, and disk clutch as one having more than three disks, nothing unusual in either case. But "transmission shaft" as a term denoting the driven shaft in a gear-set (Anglice, gear-box) is quite new. So also is "gear shift fork" hitherto known as the gear striking fork. "Striking rod" is now to be known as a "shift-bar."

No attempt has been made to standardize nomenclature for universal joints. As a result "star joint," "Hooke's joint," "cross pin joint" and one or two other terms will seemingly still be used to denote identical or similar designs. The same with "pot joint," "cardan joint," "sliding block joint," "pin and nut joint" and "De Dion type joint," all of which have been and are still used indiscriminately to describe the same type.

"Three-quarter floating axle" is a term which has been used comparatively rarely in England up to the present, but it is adopted in this report. The former non-floating type becomes semi-floating, and the latter becomes three-quarter floating, the definitions for these two and the other alternative being the same as those standard with the Society of Automotive Engineers.

Another deviation from previous nomenclature is in regard to the differential. Instead of "sun pinion" and "planet pinion" we have "side gear" and "spider pinion" respectively. Then, "lining" is applied to both internal and external brake shoes or bands. Brake "equalizer" takes the place of "compensator," while in the steering equipment section "steering knuckle" is used where "swivel axle" or "stub axle" has hitherto prevailed. The steering swivel pin becomes the "knuckle pivot." "Push-and-pull rod" and "drag link" are shelved in favor of "connecting rod," and "cross-rod" is standardized instead of "coupling rod."

SEMI-ELLIPTIC springs are to be known as half-elliptic, the latter a term used occasionally but not universally by any means up to the present; but while the quarter-elliptic spring is first definitely distinguished from the full cantilever, some explanation is needed to distinguish these two and the "half cantilever," the latter, a descriptive term which is just now, to the best of the writer's knowledge, used for the first time in England.

While, as stated, body-work is not dealt with in the interim report, we have an indication that the American term "cowl" will be used in place of "scuttle." But "bonnet" is also mentioned incidentally as meaning the engine covering and "hood" as still signifying the folding top of an open body.

As the first, and some people will say—not without reason—a somewhat belated attempt to standardize automobile nomenclature in England, this report should have aroused at least a little interest concerning variations if nothing else; but the writer has yet to observe any automobile journal in its country of origin which has done more than given a brief announcement that it has been issued. And in the one or two subsequent issues there is no evidence of any attempt to follow the standards thus set; in fact, they are seemingly ignored!

New Foundry Process Secures Uniform Hardness in Cylinder Bore

Barrels cast on metal faced cores. Uniform crystallization obtained. Average cost reduction of 75 cents per cylinder claimed for metal faced core over sand core method.

IN the recent description of the new Buick models published in AUTOMOTIVE INDUSTRIES July 27, it was briefly mentioned that a new foundry process was being employed in order to secure a uniform Brinell hardness over the entire internal bore of the cylinder. This process was recently invented by T. P. Greehow of the National Laboratory of Foundry Engineers. This invention covers a method to regulate gray iron mixture so as to give a uniform hardness test from the top to the bottom of the cylinder barrel. It was found after a series of tests on various mixtures that the Brinell hardness number of the test blocks would run at 235 or over on a barrel sample, while at the section covered by the water jacket, it would Brinell as low as 146. This, of course, is due to the annealing action of the thicker mass of metal, as well as the core in the water jacket space of the cylinder casting.

The variations of hardness found on samples taken from different parts of the cylinder castings indicated some interesting variations. For instance, Brinell tests taken on opposite sides of the walls cut from between two barrels disclosed the fact that while one cylinder in the pair gave a satisfactory hardness test, the other was below the specification limit. At the same time, flanges, bosses and other parts would be so hard as to necessitate the slowing down of the machine shop operations and the rejection of many cylinders that proved too hard to machine even at the reduced speed. The new method consists of casting the barrels on metal-faced cores and it is claimed that when finished, these present a remarkably dense, smooth surface, which indicates a uniform crystallization brought about by a thorough breaking up and even distribution of the graphitic carbon. Such a surface is also claimed to produce the best conditions for lubrication. The illustrations herewith show the core making details which are followed to obtain the results.

In the sketch, Fig. 1, is the engine cylinder casting of which Fig. 2 is the jacket wall. The casting is shown of irregular shape, illustrating the variable distribution of the mass of metal and consequent unequal heat retaining capacity.

The cylinder casting is shown, Figs. 1 and 2, as embedded within the usual sand mould 3, and containing a core 4.

In order to compensate for variations of a mass of metal comprising the casting, the metal faced plates 5 are varied in thickness throughout their extent. The segmental face plates 5 are shown with an offset or shoulder 7, thereby compensating for the annealing condition existing in the water jacket. To allow for contraction of a casting and to enable the face plate 5 to be readily removed from the barrel, they are spaced about 3/16 of an inch apart.

In order to locate the face plate in properly spaced relation for embedding in the core 4, the plates are pro-

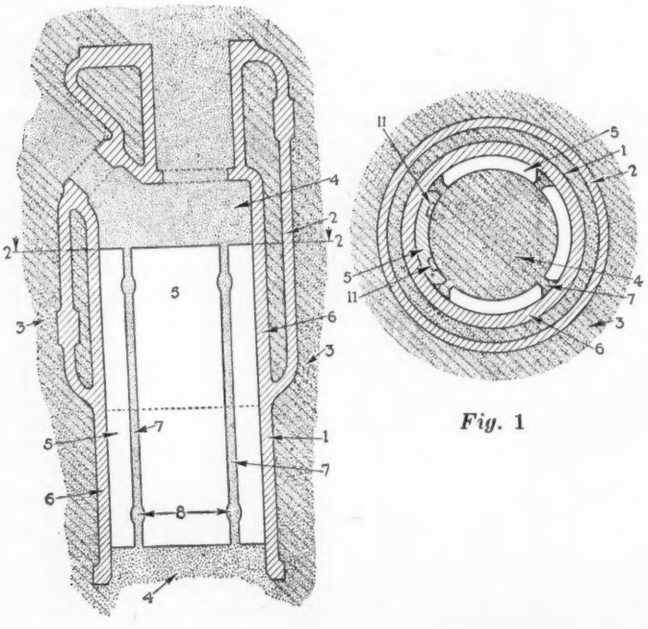


Fig. 1

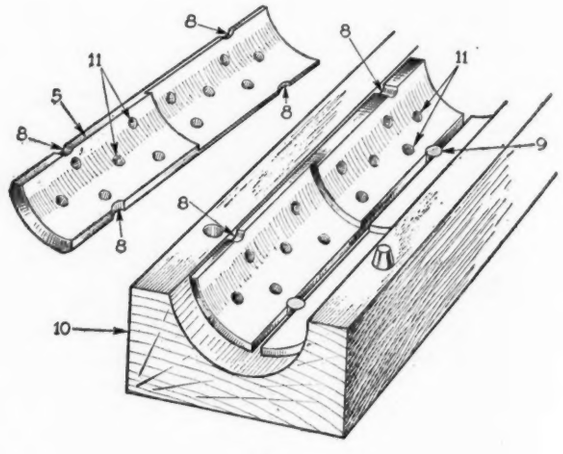


Fig. 2

AVERAGE BRINELL OF BARRELS CAST ON METAL FACED CORES AFTER FINISHED MACHINE OPERATION.

Section under water Jacket	190
Section under exposed part	200

AVERAGE BRINELL OF SPECIAL SOFT MIXTURE FOR EXPERIMENTAL TESTS.

Average Brinell under Water Jacket—Sand Cast	99
Average Brinell under Water Jacket—Metal faced core	179

This test was applied to two barrels (one sand core and one cast on metal faced core) of same cylinder block. Note that Brinell test raised from 99 to 179.

SPECIAL SOFT MIXTURE—ONE BARREL OF PAIR CAST ON METAL FACED CORE, THE OTHER BARREL CAST ON SAND.

Average Brinell under water jacket—metal faced core	210
Average Brinell exposed part—metal faced core	214
Average Brinell under water jacket—Sand core	126
Average Brinell exposed part—Sand core	137

	ANALYSIS SAND CAST	ANALYSIS METAL FACED CORE
Silicon	3.04	3.04
Sulphur	.093	.093
Phosphorus	.32	.32
Manganese	.73	.73
C. Carbon	.47	.16
Total Carbon	3.14	3.14

COMPARATIVE BRINELL TESTS SHOWING THE RELATION BETWEEN CYLINDER BARRELS CAST ON SAND CORES, AND THOSE CAST ON METAL FACED CORES.

Sand Cast		Metal Faced	
Top	Bottom	Top	Bottom
170	187	196	196
166	187	196	196
156	174	202	196
163	179	202	196
143	179	196	196
143	187	196	228
144	183	196	228
146	187	202	212
163	183	207	212
183	196	207	217
159	192	212	212
163	196	207	217
166	207	217	212
179	196	207	207
170	207	207	207
166	192	207	192
166	179	207	207
159	202	207	202
153	192	202	202
163	187	202	196
159	183	207	196
Average		Average	
Top	Bottom	Top	Bottom
160	189	203	206

In each of the above cases the metal cast against sand cores was barely machinable, while the metal cast against metal faced cores was machined at productive speed.

vided with accurate marginal notches 8; which engage locating pins 9, in the bottom of the halves of the core box 10. The pins 9 project from the bottom of the core box and receive the notches 8 of the face plate on opposite sides. The locating pins will leave depressions or holes in the core upon its removal from the core box. These holes are closed by being filled with core sand.

To afford anchorage for the face plate in the core, the interior faces of the plates are formed with a number of depressions as at 11. In addition the face plates are formed with draft or taper which further assists in holding the plates in place and prevents them from leaving the core while being handled.

After the barrels have been made the cores are run into the oven for drying. From the oven they are taken to the core cleaners, brushed off and handled in the usual way until they reach the assembly. Just before being assembled the face plates are quickly coated with a special preparation that causes the plates to leave the barrels easily, and which gives them a perfectly smooth surface. This special preparation, used in coating the metal faced cores, plays a most important part in giving the metal its density, Brinell hardness and machinability. An examination of the physical structure of iron cast by this method shows it to be identical with air furnace iron. After casting the cylinder blocks are taken to the "knock-out," where the metal faced cores are removed without an extra operation.

Experiments conducted with a view of determining whether the time of removing the core made any difference, either in the density of Brinell hardness of the barrels, proved this to be a matter of no importance.

It is claimed that the cost of making a finished cylinder block on metal faced cores averages, at least, 75 cents per cylinder less than the cylinder cost on sand cores, this difference being made up by decreased cost of tool upkeep, increased speed in reaming and machining, and reduction of losses due to segregation, sand holes, leaks, etc.

Barrels cast on metal faced cores will not ream off, as there is no line of least or greater resistance due to variable density and hardness in the barrel.

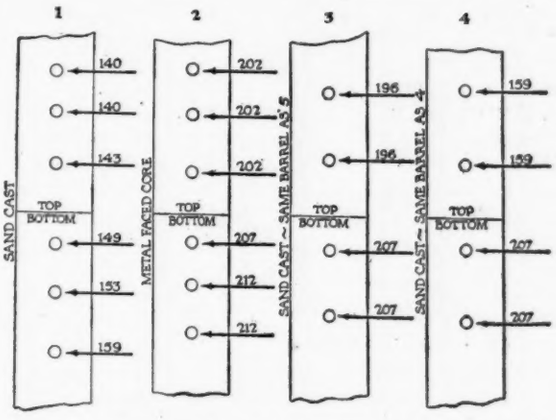


Fig. 3—The samples shown in Nos. 1 and 2 were cut from the same barrel. Sample shown in No. 1 was cut from the section of the barrel not covered by the metal faced core while No. 2 was taken from the section of the same barrel covered by the metal faced core. It will be noted that the Brinell test has been raised from a minimum of 140 to a minimum of 202. Nos. 3 and 4 indicate a wall cut from between two barrels cast entirely on sand cores. It will be noted that while the Brinell on one side of this wall representing one cylinder was very satisfactory, the other side of the wall representing the other barrel was not at all satisfactory as far as the Brinell hardness was concerned

ANALYSES OF SAMPLES FROM ABOVE SPECIMENS.

	Sand Cast			Metal Faced Cores Cast on		
Silicon	1.90	2.39	2.16	2.97	2.99	3.20
Sulphur	.123	.138	.125	.121	.099	.107
Phosphorus	.13	.13	.12	.13	.21	.14
Managanese	.70	.69	.82	.52	.66	.67
Combined Carbon	.46	.37	.39	.10	.16	.07
Total Carbon	2.97	3.17	3.10	3.02	3.27	3.17

MANUFACTURERS of motor vehicles who are desirous of entering the Chinese market should not do so within the next six months, advises Trade Commissioner **Hoyt in dispatches to the Department of Commerce.** The stocks of dealers, who usually handle two or three makes, are large at the present time and are being disposed of slowly. However, the good roads movement inaugurated in 1921 is spreading over a great part of the country and the market in China will bear watching, he states.

Combining Accuracy and Quantity in Differential Carrier Manufacture

New methods developed in Hudson-Essex plant in producing this unit. High degree of accuracy obtained. Supports for bearing cages integrally ground, instead of reamed as usual.

By J. Edward Schipper

EVEN a slight degree of misalignment in the supporting members for the gears and bearings in the rear axle is sufficient cause for extremely rapid wear. In fact, the accuracy required in bearing manufacture is largely nullified if the supporting members are not in themselves sufficiently accurate to derive all of the benefits of close limits and extreme accuracy in the anti-friction units themselves.

In AUTOMOTIVE INDUSTRIES for Aug. 17 the operations on the pinion shaft for the Hudson rear axle were described. In this same shop, which takes care of the entire axle output for both the Hudson and Essex cars and which has a capacity of probably 300 axles per day, there is a line up for the differential carrier which involves some methods which are new in manufacturing this unit. In fact, visitors from the plants of high priced cars who have followed through the processes used in the Hudson plant, have expressed themselves as surprised at the measures taken to secure accuracy in the bearing supporting surfaces. An example of this which will be explained in detail later is the practice of integrally grinding the supports for the bearing cages in place of reaming them, as is customary in most axle shops.

The carrier is a malleable casting of bell mouth shape, as may be noted from Fig. 1, which illustrates the first operation. The machine illustrated is a Gisholt, No. 5, the operations being to bore, face and turn the outside diameter. These three operations are handled on the same machine, 8 min. per casting being required to perform the work. The casting is located on an internal three-jawed chuck.

Drilling

The second operation is performed on a Baush multiple spindle drill upon which all of the flange holes and the four boss holes for holding the bearing caps are drilled. There are fourteen spindles on this machine. The work is located from the inside of the cross bearing. Another drilling operation is performed on a Tripp, two spindle machine. This drills a ¼-in. pipe hole and drills the lock bolt hole. Location for the work is on a mandrel through the bearing openings and against a V-block which butts against a lug on the casting. The holes for the 1-in. pipe slug and also the ½-in. pipe slug through which the rear axle doping operations are performed are handled on a Carlton radial single spindle drill with a Magic chuck for changing from the 1-in. to the ½-in. drill. This machine is shown in Fig. 3.

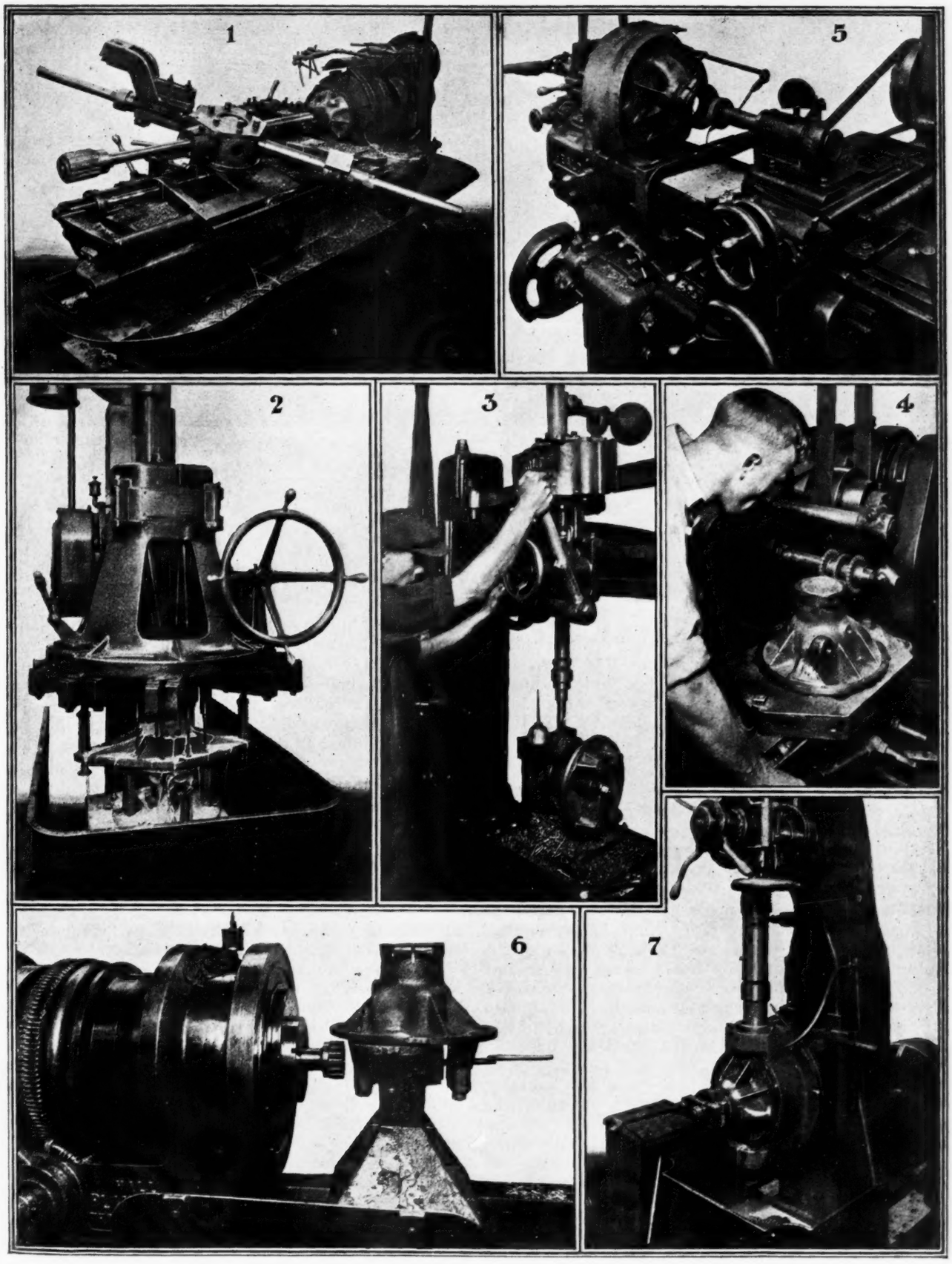
The next two operations are handled by the same man. The first of these is to slot the lock bolt hole, the operation being performed on a Toledo hand mill, as shown in Fig. 4. As will be noted, there are three cutters on this machine for slotting, as well as straddle milling. The work is located on two dowel pins through the flange holes and is supported by a mandrel passing through the center of the casting.

The other operation performed by the same machinist is on a Barnes single drill press which taps seven holes, one of them being a ¼-in. pipe thread, another a ½-in. pipe thread and the third a 1-in. pipe thread for the various drain and filling plugs, and the other four are all 9/16-in. holes.

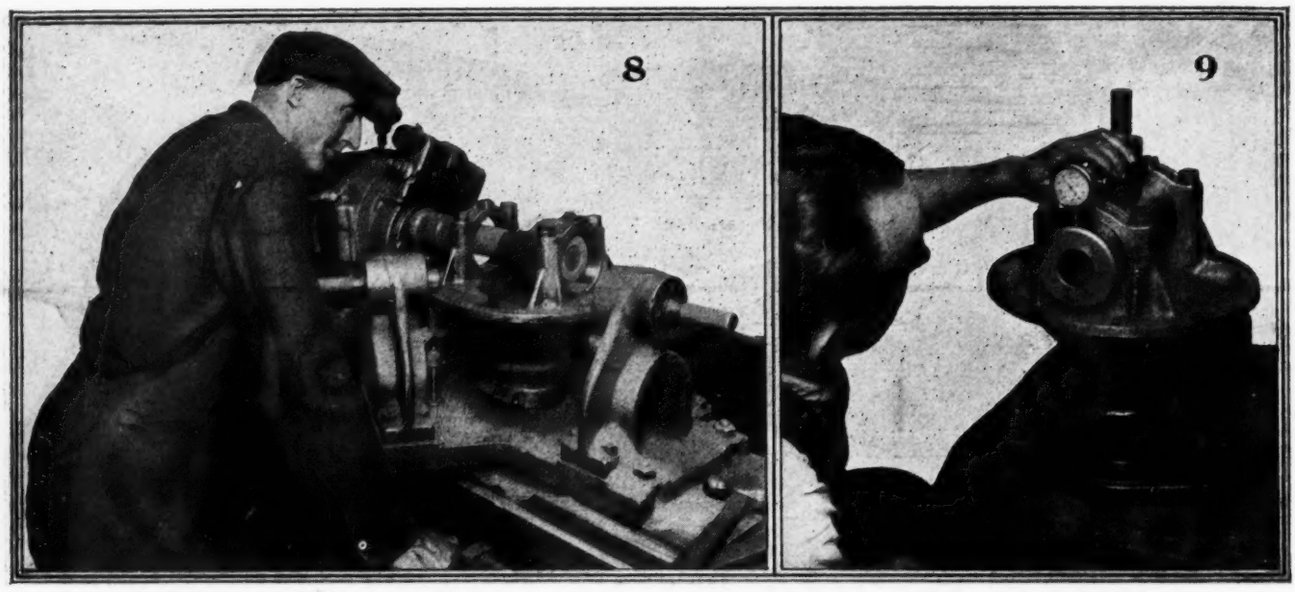
Grinding

One of the most interesting operations on the entire carrier is that next performed on a Heald grinder. This machine internally grinds the bore for the pinion bearing cage. The work is located from a plunger in the center of the bore for centering, and endwise it is held against stops which butt against the open end of the flange for end location. The plunger is ingenious in its action, as after performing the function of locating the bore, it backs out of the way so that the grinder can pass through the bore. The plunger is an exact fit, being of the same diameter as the Gisholt bore, which was the initial operation on the casting. Very close tolerances are held on the grinding operation at this point, a limit of plus .0005 in. and minus .001 in. being rigidly adhered to. The grinding operation is illustrated in Fig. 5.

A Hall planetary thread miller locating from the finish bore threads for the bearing cage. This location is held by means of an expanding collar. The operation is shown in Fig. 6. Following the thread milling operation, the caps are put on the bearings. These have not as yet been machined and the first operation on them is a Foote-Burt boring mill which bores out for the differential. This work is located from the finish ground bore and against the flange. As shown in Fig. 7, there is an indexing fixture employed in this work. The fixture is reversible, permitting each side to be bored. A feature which may be noted is the opening in the fixture for the tube carrying the cooling fluid to the machine. When the fixture is ro-



1—First operation on Hudson differential carrier. Boring, facing and turning on Gisholt No. 5 machine. 2—Baush multiple spindle drill on flange and boss holes for Hudson differential carrier. 3—Drilling 1 in. and ½ in. pipe slug holes on Carlton drill with Magic chuck. 4—Slotting and end milling the lock bolt holes on Toledo hand mill. 5—Heald internal grinder grinding surface for pinion bearing cage. 6—Type of Hall planetary thread miller which is used for threading pinion bearing cage, differential adjusting nut. Operation herewith is on differential adjusting nut. 7—Foote-Burt boring mill boring for differential



8—Heald eccentric grinder grinding internally for the differential bearing. 9—Gaging accuracy and alignment of differential bearing, the seats for which have been ground on the Heald eccentric grinder

tated to get the other index, the tube is merely pulled from the hole and inserted in the corresponding hole on the other side. The tool carries a pilot which passes directly through the casting and pilots in the ground bore on the opposite side from that on which the cut is being taken.

The bearings for the differential are also internally ground on a Heald eccentric grinder. This grinding operation is held within .002 in. limit. The work is located from the finish bore and by three plungers against the flange. It will be noted that the grinding tool goes directly through both bearings so that there is no chance of misalignment and it is not even necessary to use an indexing fixture at this point. The fixture is rigid, permitting the grinder to take off both bearings on one set-up. The method for checking this operation is shown in Fig. 9. An amplifying gage is employed to locate any variations, each carrier being checked for accuracy in the line-up of these two bearings.

The final operation is performed on a Hall planetary thread mill which threads for the differential adjusting nut. The work in this case is located from the two ground bearings on two taper plugs. The adjusting nut thread is cut on one side and the casting then turned around and threaded on the other on a reversible fixture. Following this, the castings are washed in kerosene and forwarded to the assembly department.

The Motor Bus in Argentina

THE motor bus in Argentina has not yet passed the experimental stage; in fact, it can hardly be said to have been given a fair trial. There is no city in the Republic with a line of motor buses in any way similar to those in some of the other great centers of the world.

More than two years ago, a concession was secured from the municipal authorities of Buenos Aires to run a line of buses starting from the Plaza de Mayo, in front of the Government House (Casa Rosada) along Avenida de Mayo—18 blocks—to the Plaza del Congreso; doubling there to the left along Callao for 16 blocks and thence along Avenida Alvear to Palermo Park and the Race Course. Certainly no more ideal route could be found in any city since the whole length of the run is along broad avenues where even the largest buses would not interfere with traffic and where an express service could be maintained. Likewise, sightseers on these buses would have a splendid opportunity for seeing the city, as they would traverse one of the busiest commercial districts and also ride through the most fashionable residential section. The same concession also included the running of buses along the Avenida de Mayo and continuing up Rivadavia, this latter street being very long. It is understood that the time limit allowed for this concession will soon expire and since no definite plans have been made to begin operation, it is felt that nothing will come of it.

There are probably not more than ten motor buses now in operation in Buenos Aires. In this number, are included those operated by the police and fire departments and also two or three others which are the property of private schools. Even these with the exception of the fire department vehicles, are not properly speaking buses at all but ordinary passenger car chassis, equipped with special bodies.

Outside of Buenos Aires, in some of the smaller towns, particularly in mountain and seashore resorts, a few automobile buses are being used. These, however, are largely built on light ton truck chassis. In the same way, in some rural towns and cities, with populations up to 30,000, motor buses are used between the railroad stations and hotels and also for carrying passengers from the towns to nearby parks or to race courses.

No active propaganda has yet been carried out in Argentina looking towards the popularization of this medium of passenger transportation. No doubt, Argentina offers a potential market for this class of vehicles and the situation should be carefully investigated.

Safeguarding Flying During Fogs or at Night

It is claimed that connection with the ground can be made at a 10,000 ft. altitude. At a height of 6,500 ft. it is possible to maneuver an aircraft by means of ground signals which are transmitted very distinctly.

A SYSTEM to safeguard flying at night or during fogs, similar to that used for guiding vessels, was evolved from experiments using an old electric transmission line partly surrounding the Villacoublay (France) landing field.

The results of these experiments were presented by E. F. Fournier before the French Academy of Sciences in a paper "On the Solution of the Problem of Guiding Aircraft During Fogs or Pitch-Dark Nights" by William Loth.

After putting the electric transmission line into shape, a study was first made of the magnetic field of the wire within a wide radius. The wire carried an alternating current of 60 cycles per second frequency, and its two ends were grounded. This field may be regarded as the resultant of that due to current in the slack wire, the field produced by the return current and that due to the currents induced in surrounding conducting masses. These fields are subject to two displacements of phase, one in the direction of the wire, the other in a direction perpendicular thereto.

The guiding apparatus for charting and following the wire consists of three frames, two of them vertical and perpendicular to each other, the third horizontal. Receiving is by sound, by means of a telephone connected successively to the three frames (coils) or to a combination of any two. An optical receiving apparatus may also be used.

It soon became evident that the operation was considerably affected by the parasitic noises of the magnetos; in fact, these noises became so strong as to completely prevent receiving by audible means. A new problem therefore arose. In order to solve it, the first step taken was to plot accurately the magnetic field of the magnetos. It was learned from this investigation that by grouping the magnetos in a certain way and developing a special type of magneto, interference with the signals was greatly reduced.

AT the present time the noises due to the magnetos have been almost completely eliminated. This has been accomplished as follows: Close to the magnetos is placed a receiving frame whose characteristics, such as surface, impedance and inductance, are so calculated that by connecting this frame in series with the main receiving frame, which is further removed from the magnetos, the currents induced in these two frames by the magnetic fields of the magnetos, annul each other. This arrangement, combined with discontinuous receiving, obtained by cutting out the receiver at the moments the sparks pass, permit of excluding from wireless telegraphic and telephonic circuits parasitic currents due to magnetos.

In order to increase the strength of the signals, a low frequency amplifier was added and adjusted so as to be in resonance with the variable current flowing in the guide wire, which current itself was in resonance in that wire. The receiving apparatus, which weighs only a few pounds, is invisible from the outside.

One of the vertical frames is placed in the direction of the axis of the plane or dirigible. The strength of the signals is at a maximum when the plane is proceeding in a direction parallel to the guiding wire. It becomes less the more the plane is inclined to the direction of the guide wire. No signals are received when the plane occupies a position perpendicular to the wire.

The receiving conditions of the transverse frame are the exact reverse. These frames, while remaining perpendicular to each other, may be placed at an angle of 45 deg. to the axis of the plane, and may be connected to a goniometer giving the inclination to the route.

THE horizontal frame receives from one side or the other of the line. Reception is completely stopped when the plane is perpendicularly over the guide wire. The direction of inclination toward the right or the left is obtained by connecting the two vertical frames in series, first one way and then the other. Instead of using lateral frames, either simple or grouped in series, passage from one side to the other of the guide wire may be recognized by connecting the longitudinal and the horizontal frame in series, first one way and then the other.

Landing is effected by connecting the transverse frame and the horizontal frame in series, successively in the two opposite ways. This throwing in series also indicates the rise of the guide wire on the side of a mountain or its descent.

The results obtained were as follows: Connection is made in the horizontal frame at 10,000 ft. altitude; in the vertical frames at 8500 ft. At a height of 6500 ft. one can hear distinctly over the assembly of the guiding apparatus and one may begin to guide the plane without interference from engine noises or by the magnetos. At 5000 ft. the reception is strong enough. At 3250 ft. it is strong. At 6500 ft. altitude connection occurs at 6500 ft. lateral distance from the wire. At 5000 ft. it is still further increased and on the ground it is nearly ten miles to each side of the cable.

These results are the minima. They were obtained with a line about two miles in length, of a devious character and having eight sharp turns. The longest straight portion was only 1800 ft. long. The results should be still further improved on a straight line of greater length. Already, according to the opinion of specialists, they suffice for the guiding of airplanes and dirigibles. The current strength in the line varied between 2.8 and 4.2 amperes. On landing fields the installation of wires would permit planes to always land facing the wind.

How Motor Transport Was Saved from Destruction in England

British railroads, feeling the pinch of truck competition, attempted to have legislation passed giving them monopolistic power. Truck interests successfully opposed these efforts. American truck manufacturers can profit by experience of motor transport abroad.

By M. W. Bourdon

FROM reports received in England it would seem that there is developing in the United States, in California in particular, a situation which has had its parallel in England during the past two or three years and which reached its culminating point in June last. That is to say, the railroad companies having commenced to feel the competition of truck operators, are beginning to make endeavors to handicap the latter, or as an alternative considering the question of becoming truck operators on a large scale themselves.

The British truck industry, as made up of manufacturers and users, has passed through a crisis of late in this connection, for it has had to combat what threatened to be an attempt on the part of the North Western and Midland group of railroads to secure a monopoly of road transport within the area in which that group operates. Needless to say the railroad authorities strenuously denied that they had anything in the nature of a monopoly in view, but it was evident that that was their purpose. Their ultimate object was to stifle competition by cutting rates, break up the existing road transport companies, and then to redivert freight traffic to the railroads.

That is, at all events, how their intentions were translated by the truck industry, and as a result the latter, combining with representative associations of British industry in general, offered strenuous opposition to the railroad companies' endeavors. The history of this fight—for their very existence in the case of the road transport companies, if not, as some people maintain, for the truck manufacturers—contains some lessons and a warning which might well be taken to heart by truck interests in the United States.

Railroads Sought More Power

Fortunately for the British truck makers and users the group of railroad companies in question required the sanction of Parliament to operate as truck owners, other than at railroad terminals. Under their existing powers they can use trucks for collecting freight for rail transport and for delivering it to consignees after conveyance by rail. But they have never been permitted to collect, transport and deliver by motor trucks alone. The North Western and Midland group, therefore, endeavored to secure an extension of their powers by promoting a private bill in parliament, the effect of which would be to allow them to act in direct competition with truck owners. If they had been successful, the other railroad groups would certainly have followed suit and precedent would have smoothed their way.

This question as to whether the railroad companies should be allowed to operate "through" services of truck transport has agitated the whole of British industrial circles for over two years, for the freight owner has been disturbed at the prospect, as well as the truck and road transport industry, scenting danger to his own interests in the possibility of a monopoly governing both road and rail transport. Admittedly, there has been some divergence of opinion on the matter among freight owners, and a few local chambers of commerce have passed resolutions in favor of the railroad companies' plans. But the strongest bodies have been in opposition, and over fifty authoritative petitions against the proposals were put forward, including those of the London Chamber of Commerce and the Federation of British Industries, the latter one of the most influential bodies of manufacturers and traders in Great Britain.

Sources of Opposition

The original opposition was divided into three main sections: 1, truck makers; 2, road transport companies, and 3, general industrial undertakings, the latter being subdivided into (a) those which do not own trucks themselves but employ road transport companies as well as the railroads, and (b) those which run their own trucks.

The opposition of the truck makers was founded on the fear that the railroad companies would enter into competition with them as makers of trucks, and those, too, not only for their own use but for sale or hire to freight owners. This first section of the opposition continued its efforts almost up to the introduction of the bill into Parliament, but at the last moment was placated by an agreement under which the railroads undertook to refrain, for a period of five years, from manufacturing motor vehicles. The truck makers evidently took fright at the prospect of the railroads securing the powers they sought, despite all opposition, and sought to make the best bargain they could before it was too late. But they have been severely criticised for letting down the other sections, for having, as it were, "sold their birthright for a mess of pottage."

The fears of section 2 (the road transport companies) of the opposition were of obvious foundation. They saw themselves being forced out of business in a comparatively short time by rate-cutting on the part of the railroads in connection with road transport, and they refused to be put off by an amendment which was introduced into the

bill as originally drafted and which was said to have the effect of safeguarding the truck operators' interests. While the amendment appeared on the face of it to undermine the truck operators' opposition, the cloven hoof became apparent upon closer examination. It proposed that the railroad companies' rates for road services should be the same as those for transport by rail—excluding charges for terminal expenses, collection and delivery—but nullified that by stipulating that as in the case of railroad rates the companies should have the right to quote exceptional rates of not more than 40 per cent below the standard rates. The truck operators would have been quite happy to compete with rail transport rates less the charges mentioned, but the 40 per cent reduction possibility was another matter, it being held that the railroads would soon take advantage of their powers in that direction and hold as "exceptional cases" all kinds of freight really worth while from the truck operators' standpoint.

Coming now to Section 3 of the opposition—the freight owners—these formed the most influential body; they represented the general public as well as themselves, for their whole object was to keep transport competition alive so that they, and through them the public, could have the benefit of reasonable rates in the future and not be dependent upon the good will of a monopoly. They foresaw that the railroads were not desirous of permanently encouraging road transport at the expense of rail traffic, but were anxious to get control of the former, to stifle competition and then to be at liberty to charge what rates they liked for either road or rail transportation.

The majority of freight owners took this long view; the others saw only the prospect of the low rates due to competition in the immediate future, and took the word of the railroad companies that they were not out for a monopoly.

The freight owners who are also private owners of trucks (Section 3b) feared indirect hurt to their interests. They held that the railroads would cut rates far below those represented by the cost of operating their own trucks, and that either their trade competitors, the non-owners of trucks, would therefore have an advantage in freight charges or else they themselves would be compelled to sell their own trucks at any price they could secure and hand over their transport work to the railroads to get the benefit of the lower charges.

This would assuredly have happened, and the wholesale realization of their trucks by freight owners would, of course, have reacted upon the truck makers. The latter could not, apparently, take such a long view, and, as mentioned, were content to make a bargain to cover the next five years.

Despite the strength of the organized opposition the bill passed the "second reading," almost got through the "committee stage" and had only the third reading to face. Whether this opposition would have eventually been strong enough to throw out the bill on the third reading cannot be said; the collapse of the project was due to Governmental intervention. The Ministry of Transport had actually recommended the bill to Parliament on the second reading, but refused to accept the principle of certain amendments introduced between the second reading and the committee stage relating to the "machinery" to be employed for fixing rates and preventing unfair competition. The railroad companies refused to vary the principle, and dropped the bill forthwith.

THESE are the factions which combined to oppose the attempt of British railways to get a monopoly on transportation:

1. **Truck manufacturers.**
2. **Road transport companies.**
3. **General industrial organizations, including.**
   a. **Those which own trucks, but employ transport companies as well.**
   b. **Those which run their own trucks.**

The truck manufacturers compromised with the railroad interests before the end of the battle. But the public interest in permanently economical highway transport prevailed in the end. This story tells how this combined opposition operated successfully.

The fact is, the Ministry of Transport had not realized the full force of the contentions of the opponents of the bill until in the cross-examination of witnesses who gave evidence during the committee stage it became quite evident what the railroad companies were after. Thus it may be said that although the bill was dropped because of the intervention of the Ministry of Transport its withdrawal was indirectly due to the case put forward by the opposition.

It was the great increase in inter-city traffic which gave cause to the railroad companies to attempt to enter the road transport field, for there can be no doubt that the lower rates which the transport companies are able to quote, coupled with the greater convenience to the freight owner in having his merchandise conveyed from "door to door" and the greatly reduced risk of damage to fragile goods, has made an appreciable impression upon the railroad companies' revenue. They are, in other words, feeling the competition of road transport much more than they like and to an increasing extent.

Siam Passes First Bill for Federal Highway Aid

SIAM, with a registration of 1950 automobiles and trucks, is reported to have just passed its first bill for federal aid in the construction of highways in the Kingdom. The present administration is the first to officially have at their disposal automobiles for their use and are reported to be strongly backing good roads in that country.

That this is so is evidenced by the announcement at Washington of the Siamese consul that he has just purchased for use in his country the film productions of the American Highway Educational Bureau, to be used in fomenting highway construction in Siam to the end that more automobiles may be sold there.

The film shows the evolution of the modern highway from the mud road and how they are constructed.

Improving Tractor Sales and Service

Tractor prices now satisfactory. Better knowledge of territory and more adequate service essential to obtain increased sales. Dealers assisted financially by factory have advantage over others.

By Donald D. Blanchard*

TRACTOR dealers in Ohio have enjoyed a fair measure of prosperity during the past spring. Sales made this year are many times those made in the same period of last year. Price, terms and weather conditions have been important factors in the making of these sales.

The heavy price cuts made last winer evidently have brought the tractor down to a figure that is satisfactory to the farmer. At present prices the farmer seems to be convinced that the tractor is a profitable investment. The price cuts accomplished what elaborate comparisons showing that implement and tractor prices had not increased as much during the war period as the prices of other commodities, could not accomplish.

The bottom had fallen out of the farmers' market. Until tractor and implement prices had taken a similar drop, the farmer would not exchange any of the few dollars that his products brought for machinery that was priced on the basis of the war dollar.

The pockets of Ohio farmers are not well lined with cash. There is likely to be a decided improvement in this respect this fall if crops come up to present expectations, and if the market for these crops maintains a reasonably high level. Still, the average Ohio farmer is in pretty fair shape despite the shortness of his cash assets. There are some who may not survive financially, but these are the exceptions.

As a result of this shortness of cash, practically all of this spring's buying has been on a credit basis. This is a decided change from last year. It indicates that the farmer's view of the future is much improved. He sees better times ahead, and he is willing to use his credit to buy equipment that will hasten their arrival in any possible way.

Very few tractors have been sold for cash this spring. In some cases the farmer has given notes for the entire purchase price. In others he has paid a quarter or a third down. The notes mature in 6 to 18 months.

Some of the factories assist their dealers in handling the farmers' paper. These factories offer an additional discount for cash, and dealers who are financially able to do so are availing themselves of this additional profit. Of course, before a note is accepted a careful investigation of the reputation among tradesmen of the maker is made.

The local banks are also assisting in financing farm machinery sales. They are not favorable to the 18-month notes, but in a majority of cases will buy six-month paper made by responsible farmers and endorsed by the dealer. In a few cases dealers are using farmers' notes as collateral security for loans from the banks on their own notes. If a note is to be sold to a bank, the dealer invariably determines whether the bank will buy it before accepting the note.

Dealers handling lines that are not factory-financed naturally are at a disadvantage, unless they can finance themselves. Dealers in this class must have capital of their own to carry their sales, or they must have the assistance of a bank. The ability to accommodate the farmer with credit is essential to farm machinery sales in this territory at this time.

Weather conditions favored tractor sales during the past spring. The season was late and unusually wet. Farmers found it difficult to get their crops in with horses. Many of them met these weather conditions by purchasing tractors. The tractors worked so much faster that the farmers were able to get their crops planted in the short dry spells.

In this connection, it is interesting to note a change in viewpoint. At one time the tractor was regarded as a strictly fair weather performer. It was supposed to be a disadvantage as compared with horses when the going was heavy. But the experiences of the past spring indicate the contrary is true. The tractor has proved itself a reliable machine in all sorts of weather.

Practically all the dealers in this territory depend entirely on tips and other chance information for the location of prospects. Very few are making any systematic investigations that produce all the sales possibilities of their territories. Most of them keep some sort of a prospect record, but it is the exceptional dealer that is making any special effort to get names to put on this prospect record.

The average dealer considers himself well acquainted with his territory. He feels that he knows about everybody worth knowing and that he is a pretty good judge of their credit. And he uses this knowledge as the basis of his sales work. There is some reason to question the accuracy of this knowledge. It hardly seems likely that a dealer with a territory embracing an entire county with

THIS story was written by a trained observer after an extended trip through the Ohio tractor territory. In this article he tells tractor manufacturers how their merchandising policies look from an investigation of dealer and farmer conditions.

Insofar as Ohio is typical of other states, this story reviews general conditions. Much of it will apply anywhere in the country. Certain detail phases are concerned only with the particular territory involved.

*Editorial staff, *Motor World*.

approximately 5000 farms in it can know his territory so well that he can realize on all of its sales possibilities without resorting to intensive selling methods.

Under present conditions, when tractors and machinery must be sold on credit, the obvious method of territorial sales analysis would seem to be the determination of what farmers in the territory have good credit. The next step would be to determine the needs of this class and to focus all selling effort on the job of filling these needs.

A few dealers have made farm-to-farm canvasses, and a profitable percentage of the prospects turned up in this way have been sold. One dealer in Southwestern Ohio has two salesmen on the road. They work on a commission basis and are independent of any direction from the home office. This dealer does not think that the commissions they earn during the year will be large enough to balance their drawing accounts. The failure of these salesmen can very likely be traced to the fact that their efforts are of a hit-or-miss variety. They are going where the grass looks greenest, and in so doing are very likely passing over many prospects that could be sold. It is quite probable that, if their efforts were directed and supervised by the home office, they would be more successful.

Now that the farmer is satisfied with tractor prices and is willing to use his credit to buy them, the two principal points of sales resistance have been eliminated. Most of the farmers hereabouts seem to be convinced of the tractor's utility and economy. Despite this condition, demonstrations are still helpful in securing orders. These demonstrations are in the nature of exhibitions for individual farmers rather than public affairs.

The importance of service seems to be pretty generally realized, but not many dealers are equipped to handle it. One dealer interviewed has an inspector whose duty it is to report on the condition of tractors. If repairs are needed, this dealer sends a mechanic from his service station to handle them. The farmer is charged so much for each mile this mechanic has to travel, in addition to the charge for the time spent in making the repair. Another dealer has a handy man who helps the farmer with difficult repair jobs on both tractors and implements. The dealer does not make any charge for his services regardless of the age of the machinery repaired.

Parts stocks carried by dealers are on the whole rather limited. Dealers depend on the complete stocks maintained by branches and distributors for their needs.

It is difficult to say just how far the dealer can afford to go in the matter of service. The average farmer is inclined to do his own tinkering and to call on outside assistance only when the job is too much for him. For this reason the dealer service station is likely to get only the hard jobs. Furthermore, unless the dealer has a large number of tractors in the field, he cannot hope for a profitable volume of service work. These conditions probably account for the fact that so few dealers have made any provision for tractor service. The dealer knows that service is essential to sales, but he can't afford to provide as good service as he should. Of course, if he operates a garage, or a service station for cars and trucks, tractor service can be handled very nicely. But the dealer who handles nothing automotive but the tractor is in a difficult situation from the service standpoint.

What's Wrong with Tractor Sales in South Africa?

HERE is the opinion of tractor selling methods in South Africa recently expressed by a correspondent of the *British and South African Export Gazette.* His views may or may not be entirely sound. In any case, they will be of interest.

THE Union Market for farm tractors has temporarily gone all to pieces. Why? The market itself offers immense possibilities which have hardly yet been touched, but selling enterprise has practically died out after quite a spirited campaign in 1920 and the early part of 1921. It is incomprehensible, when the vast needs of the country are considered, that both British and American makers, with, I believe, only one remaining exception, have withdrawn their agents and representatives and abandoned the field. The solitary exception is an enterprising American firm operating through merchant-agents on the Rand. In 1920 the Union of South Africa imported 736 tractors (148 British and 570 American), valued at £199,626, while last year only 72 (28 British and 38 American), valued at £45,897, entered the country.

Now it is not because the tractor has failed in South Africa; on the contrary, it has never had a thorough try-out, though its immense advantages are readily apparent whenever it gets an occasional reasonable trial. It is the ideal form of power for South African conditions, where the ox, though a very useful animal, is literally preventing the farmer from making similar progress to that of agriculturists in other countries. Imagine farmers in any other part of the world being content to waste four or five hours in the middle of each day because the oxen must be out-spanned during the noon heat. It seems incredible, yet South Africa is to-day not the agricultural country it should be because the majority of its farms are under-cultivated owing to the fact that animal power cannot cope with the work in the limited time available. The real trouble is that the farmer is not educated on the subject.

And whose fault is that? I say without hesitation that the tractor manufacturers are to blame. I have travelled throughout the Union, and have not met more than one or two demonstrators in as many years outside town showrooms and show-grounds. On the contrary, I have almost invariably found tractor agencies in the wrong hands. They have too frequently been given to motor-car agents and garage proprietors, when the proper people would have been agricultural implement dealers. As *The British and South African Export Gazette* truly said recently, "A potentially great trade lamentably mishandled!" Also, most makers fail to supply two or three models of varying horsepower to meet the needs of differently-circumstanced farmers. To market only one model means frequent sales in districts unsuited to it, the result being dissatisfaction and a bad name for tractors as a whole, whereas a machine of higher or lower power would have succeeded and provided a splendid advertisement. Now, to cap all, a spell of trade depression has made practically every maker run away from the market. Let them come back while the tide is turning, place their agencies in the right hands, flood the country with expert demonstrators, and, above all, start educating the farmers and the merchants as to the enormous possibilities of the tractor by every available means, and they will quickly find their field of previous failure the finest market in the world. South Africa has got to have tractors eventually; why not get on with it now by returning to the attack on more business-like lines?

Exports of Passenger Cars,

COUNTRY	GASOLINE PASSENGER CARS						GASOLINE			
	Up to $800		$800 to $2000		$2000 and over		Up to 1 ton incl.		Over 1 to 2½ tons	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Europe										
Azores and Madeira Islands										
Belgium	666	$215,682	31	$36,690	2	$5,394	340	$84,405		
Bulgaria										
Czechoslovakia	12	4,951								
Denmark	40	22,175	47	49,646	3	7,510				
Esthonia			1	994						
Finland	15	3,821	1	945			12	2,905		
France	55	27,978	16	19,694	7	23,837	1	404	1	$800
Germany			2	2,025	1	3,870				
Gibraltar			2	2,093						
Greece	28	15,582	3	3,800	1	3,000	1	404		
Hungary	1	414								
Iceland and Faroe Islands										
Italy	6	2,150	3	2,875	1	2,500	2	808		
Latvia			1	1,000						
Malta, Gozo and Cyprus Islands	9	3,453								
Netherlands	35	22,635	45	49,596	3	9,254	2	891		
Norway	233	73,048	52	51,496			26	6,295	7	7,515
Poland and Danzig										
Portugal					1	3,025				
Roumania	1	735	1	1,000						
Russia in Europe	2	900								
Spain	131	53,556	101	119,827	7	20,855	62	15,428		
Sweden	860	300,906	99	115,222	2	6,692				
Switzerland	10	5,160	28	33,496	5	13,646				
Turkey in Europe										
Ukraine			2	2,025						
England	575	318,310	175	188,161	14	61,288	1	724	34	43,685
Scotland	2	1,100	4	3,573						
Ireland	3	1,040	2	3,298						
Yugoslavia, Albania, etc.	4	944					1	414		
North and South America										
British Honduras			2	2,228						
Canada	878	520,543	795	926,281	134	354,998	41	31,786	69	87,313
Costa Rica	4	2,203					1	404		
Guatemala	4	3,064	3	3,848						
Honduras	3	1,744								
Nicaragua										
Panama	6	3,361	5	5,718			1	404		
Salvador			4	4,960						
Mexico	406	176,821	144	153,663	13	39,047	110	43,629	6	5,125
Miquelon and St. Pierre Islands										
Newfoundland and Labrador	5	2,500	5	6,155						
Barbados			1	829			2	4,600		
Jamaica	33	16,751	3	2,628			3	1,616	2	2,000
Trinidad and Tobago	17	6,834	2	1,920						
Other British West Indies	11	4,314	2	1,957	1	4,000	6	2,270		
Cuba	48	25,522	14	20,743	19	60,579	4	1,437	7	7,298
Dominican Republic	16	6,360	2	2,353			5	2,020		
Dutch West Indies	3	1,373	1	1,087			1	404		
French West Indies	1	415								
Haiti	2	920	1	875						
Virgin Islands of U. S.							1	404		
Argentina	79	41,221	27	33,094	7	21,813				
Bolivia							1	404		
Brazil	32	21,946	54	58,793	4	10,768				
Chile							6	2,698		
Colombia	19	7,739			1	3,450	2	808	2	3,568
Ecuador							2	1,350		
British Guiana										
Dutch Guiana	1	700	1	972						
French Guiana	1	443					1	404		
Peru	1	761	1	2,000			2	808	5	4,472
Uruguay	35	14,600	6	8,413	1	3,570			15	7,500
Venezuela	16	6,629	3	2,808	3	7,784	6	3,186		
Asia										
Aden	1	735								
Armenia and Kurdistan										
Ceylon	13	8,769	6	5,875						
China	42	23,531	42	41,260	2	5,975	13	6,220		
Kwantung										
Chosen										
British India	75	48,886	17	16,862					14	16,478
Straits Settlements										
Other British East Indies										
Other Dutch East Indies			3	3,191						
Java and Madura			40	42,264						
French Indo China										
Hejaz, Arabia and Mesopotamia										
Far Eastern Republic										
Hongkong			1	1,265	2	12,692				
Japan	4	2,276	4	5,945	2	4,957	45	18,200	34	17,110
Palestine and Syria	126	62,508	7	7,714			2	808		
Philippine Islands	36	18,220	1	2,000	4	10,820				
Greece in Asia										
Siam										
Oceania										
Australia	484	296,638	322	338,280	10	23,935			10	11,749
New Zealand	48	34,339	10	13,204	1	2,888			7	10,386
Other British Oceania	1	600								
French Oceania										
Other Oceania	2	1,128								
Africa										
Belgian Kongo	6	1,958					8	2,752		
British West Africa	4	2,416			3	8,400	10	7,016		
British South Africa	89	63,123	113	111,929	1	2,904	4	3,172	3	4,815
British East Africa										
Canary Islands	4	2,101	8	10,878						
Algeria and Tunis										
Other French Africa	2	829								
Egypt			2	1,905						
Morocco	38	18,224	2	1,695					1	650
Other Portuguese Africa	1	513	1	905			54	20,760		
Portuguese East Africa			6	4,824			1	800		
Spanish Africa			1	900						
Bermuda										
Total	5,285	$2,528,098	2,278	$2,539,677	255	$739,451	780	$271,038	217	$230,464

Trucks and Tires for June, 1922.

TRUCKS		PARTS	ELECTRIC CARS AND TRUCKS		TIRES						COUNTRY
Over 2½ tons					Casings		Inner		Solid		
No.	Value	Value	No.	Value	No.	Value	No.	Value	No.	Value	
											Europe
		$49			12	$364					Azores and Madeira Islands
		12,554			1,342	16,705	557	$1,340			Belgium
		845									Bulgaria
					206	4,809					Czechoslovakia
		671,178	2	1,546	4,092	61,187	2,386	4,371	59	$2,118	Denmark
					17	500	2	6			Esthonia
					693	8,906	203	498			Finland
		319,807			932	10,058	81	160			France
		782			140	2,005					Germany
		1,612			30	225					Gibraltar
		1,987			1,082	17,015	783	1,586	10	302	Greece
											Hungary
		127			157	2,265	82	255	4	100	Iceland and Faroe Islands
		1,944			792	15,948	4	16			Italy
											Latvia
		1,133			248	2,592	60	100			Malta, Gozo and Cyprus islands
		6,319			1,809	30,873	1,047	2,128	16	643	Netherlands
		9,495	3	1,730	3,801	69,140	4,227	8,810	61	1,975	Norway
		13									Poland and Danzig
		1,194									Portugal
		833			50	1,262	250	1,467			Roumania
											Russia in Europe
		183,677	1	1,900	5,376	74,176	1,324	2,535	358	8,078	Spain
		15,680	1	3,500	6,793	134,971	2,819	7,068	19	1,089	Sweden
		2,773			143	2,838	41	95			Switzerland
		897			366	3,903	224	470	12	434	Turkey in Europe
					15	203					Ukraine
		415,108	3	5,025	29,667	279,339	10,687	17,267	790	17,063	England
					311	3,723	125	223			Scotland
		2,287			1,280	10,186	1,483	2,092			Ireland
					28	605	6	16			Yugoslavia, Albania, etc.
											North and South America
		80			8	150					British Honduras
46	131,527	1,666,866	13	230	6,441	94,995	5,591	11,460	413	14,971	Canada
		3,985			194	3,083	118	555	2	107	Costa Rica
		3,002			56	1,605	84	283	12	401	Guatemala
		3,650			79	1,232	8	70	52	2,705	Honduras
		266			27	595	32	87	4	61	Nicaragua
		7,396			434	6,126	757	1,082	92	1,711	Panama
		1,832	1	2,067	70	1,770	71	173			Salvador
19	16,792	69,931			9,626	94,365	7,193	12,813	164	4,193	Mexico
		16									Miquelon and St. Pierre Islands
		2,268			131	1,913	72	132	2	30	Newfoundland and Labrador
		1,226			161	1,850	98	128			Barbados
		6,274			953	14,256	751	1,533	37	1,356	Jamaica
		6,137	2	1,642	61	862	373	747			Trinidad and Tobago
4	23,000	1,725			72	845	87	152	8	493	Other British West Indies
		54,959			10,572	128,461	9,026	16,618	412	15,946	Cuba
		9,775			1,308	19,270	1,864	4,129	160	3,721	Dominican Republic
		888			105	1,320	205	376			Dutch West Indies
		2,802			289	3,478	182	228	12	321	French West Indies
		1,534			121	1,968	158	315			Haiti
		168			48	612	64	119			Virgin Islands of U. S.
5	9,218	174,799			3,594	29,551	3,078	5,799	12	449	Argentina
					81	1,356	80	155			Bolivia
		88,113			1,691	18,389	2,185	3,122	400	22,302	Brazil
		7,821			1,122	19,773	699	1,969	80	2,018	Chile
6	22,743	8,668			444	7,411	393	1,147	6	125	Colombia
		742			210	4,508	136	292	2	41	Ecuador
		21	1	880	72	719	36	59			British Guiana
		658			3	41					Dutch Guiana
		3,716									French Guiana
					1,218	17,660	827	2,043	10	262	Peru
		11,503			1,434	19,922	418	630	10	159	Uruguay
		5,586			978	13,280	699	1,259	8	142	Venezuela
											Asia
		180									Aden
		826									Armenia and Kurdistan
3	6,675	858			4	94	4	10			Ceylon
		11,868	2	3,200	220	3,477	466	700			China
1	2,400										Kwantung
		980			76	800	150	250			Chosen
		28,365			254	3,173	111	286	70	2,319	British India
		5,901			856	11,690	345	986	20	420	Straits Settlements
		571									Other British East Indies
		1,418			282	2,311	307	749	66	2,590	Other Dutch East Indies
		18,037	1	3,150	3,973	46,135	2,699	6,950	133	5,127	Java and Madura
		1,532									French Indo China
		250			386	5,239	326	928			Hejaz, Arabia and Mesopotamia
					44	779	50	132			Far Eastern Republic
		2,614			8	134	4	9	4	343	Hongkong
7	10,570	34,902	18	31,460	524	11,379	28	265	85	1,401	Japan
		5,386			101	1,684	162	1,040			Palestine and Syria
		14,211	1	2,714	3,667	46,880	3,959	8,176	221	6,017	Philippine Islands
		1,061			1	27					Greece in Asia
		927			74	1,079	60	90			Siam
											Oceania
29	51,016	70,118			6,038	103,413	2,987	5,943	605	14,397	Australia
2	2,836	23,054			3,983	50,204	842	1,624	39	1,046	New Zealand
		219			14	213	28	51	2	37	Other British Oceania
		454			36	631	26	85	6	352	French Oceania
		8									Other Oceania
											Africa
		1,065									Belgian Kongo
		13,542			474	7,451	685	1,890			British West Africa
2	8,000	23,202			3,785	43,507	1,675	2,867	53	1,115	British South Africa
		2,054			280	3,141	32	65			British East Africa
		7,842			563	6,969	297	538			Canary Islands
		166									Algeria and Tunis
		1,676			8	209					Other French Africa
		5,782			473	5,484	113	259	14	401	Egypt
		3,333							35	717	Morocco
		10,163			168	4,560	328	746			Other Portuguese Africa
		340									Portuguese East Africa
		70			76	1,034	10	25	158	3,667	Spanish Africa
		96									Bermuda
124	$284,777	$4,089,772	49	54,044	125,353	$1,626,861	77,370	$152,642	4,738	$143,265	Total

AUTOMOTIVE INDUSTRIES
The AUTOMOBILE
Reg. U. S. Pat. Off.

PUBLISHED WEEKLY

Vol. XLVII Thursday, August 31, 1922 No. 9

THE CLASS JOURNAL COMPANY
Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager
David Beecroft, Directing Editor
U. P. C. Building, 239 West 39th Street, New York City

BUSINESS DEPARTMENT
Harry Tipper, Manager

EDITORIAL
James Dalton, Editor
Norman G. Shidle, Managing Editor
P. M. Heldt, Engineering Editor
Herbert Chase, Engineering Editor

DETROIT OFFICE
J. Edward Schipper

WASHINGTON OFFICE
816 Fifteenth St., N. W.

BRANCH OFFICES
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
Detroit—317 Fort Street, West, Phone Main 1351
Cleveland—538-540 Guardian Bldg., Phone Main 6432
Philadelphia—1420-1422 Widener Bldg., Phone Locust 5189
Boston—185 Devonshire Street, Phone Congress 4336
Indianapolis—1212 Merchants Bank Bldg., Phone Circle 8426
Milwaukee—516 Colby-Abbott Bldg., Phone Broadway 3528

Cable Address ..... Autoland, New York
Long Distance Telephone ..... Bryant 8760, New York

United States and Mexico ..... One Year, $3.00
Extra postage west of the Mississippi River on account of Zone Postage Law 0.50
Canada ..... One Year, 5.00
Foreign Countries ..... One Year, 6.00
To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order or Register your letter.

Owned by United Publishers Corporation, Address 239 West 39th St., New York; H. M. Swetland, President; Charles G. Phillips, Vice-President; A. C. Pearson, Treasurer; Fritz J. Frank, Secretary.
Entered as second-class matter Jan. 2, 1903, at the post-office at New York, New York, under the Act of March 3, 1879.
Member of Associated Business Papers, Inc.
Member of the Audit Bureau of Circulations.
Automotive Industries—The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903, and the Automobile Magazine (monthly) July, 1907.

Safety Makes Sales

THE announcement of a "Seven Days for Safety" campaign again calls to mind the commercial as well as the humane importance of decreasing motor vehicle accidents. The necessity for reducing human suffering and injury to the minimum is the basic reason for all safety work. For this reason alone, automotive executives, along with others, are vitally interested in the promotion of greater safety on the highways and in the factories.

But the automotive industry has an added selfish interest in actively supporting safety and traffic regulation movements. Many pages of unfavorable comment have been written about motor vehicles because of the toll of human life they have taken during recent years. Traffic conditions in large cities are becoming very bad. Congestion is resulting in increased accidents. All of these things tend to create greater resistance to car and truck sales. They make selling more difficult.

Decreased accidents will indirectly mean decreased sales cost.

The dates set for the "Seven Days for Safety" are Oct. 8 to Oct. 14. The Highway Education Board, in which the automotive industry is actively represented, is backing the campaign. Individual manufacturers can help the work along materially by giving it hearty support in their particular communities and by cooperating with the Highway Education Board in promotion work.

"It's an Ill Wind—"

EXCESSIVE rains worked great hardships upon many American farmers this year. They found it extremely difficult to get their crops planted in proper time, and many were weeks behind with their seeding.

Tractor manufacturers report that this gave the tractor a golden opportunity. Many farmers bought tractors as a sort of "last hope." The tractors are reported to have done the job—in many cases where the owner had not thought it possible.

The result is not only increased sales as a result of the farmer's necessity, but a greatly increased respect for the tractor in many agricultural communities.

The basis of tractor sales will always be found in the answer to the question, "What will the tractor do for the farmer?" Sales will increase and sales cost decrease as manufacturers concentrate their efforts upon answering this single question in as many varied and practical ways as possible.

How Much Does a Dealer Cost?

NEARLY every car manufacturer needs more dealers. Increased distribution depends upon an increased number of retail representatives. In making a drive for new dealers, however, the manufacturer must consider a number of factors outside of his own organization.

Every dealer costs the manufacturer a certain amount of money. Every dealer put on the list and later lost because he couldn't make a living has caused an expense. Therefore, the manufacturer is interested in the total number of dealers in a given territory as compared with the probable sale of cars in that territory and the probable future sales of his particular car. He wants to be sure that the dealer is in a position to make money and he should have some idea of how much the dealer's profits are likely to be.

The cost of getting and keeping a dealer includes such items as:

Expenses of factory traveling representative.
Factory share of local advertising.
Expense of promotion literature and dealer helps.
Advertising for new dealers.

Then there are numerous other items, less tangible in character, which make a dealer an asset or a liability to a factory. A lost dealer means decreased prestige for the car in the territory, a period during which sales are less than they should have been, and

considerable trouble to the factory sales department, which in the end costs more money.

Dealers cost money, as well as make money. Consequently, the manufacturer in selecting dealers should precede his choice with the same careful analysis and knowledge of what he is getting that precedes the buying of valuable materials. Careful studies in certain cases have convinced manufacturers that certain dealers were not worth as much as it cost the factory to get them and keep them. Such possibilities should be considered along with the usual factors in the drive for wider dealer representation.

Safer Steering System Parts

STEERING connections and joints in the steering systems of many cars now in use in this country leave much to be desired. In some cases the design is faulty. In others material is poor, while in other cases careless manufacture is very evident. In some instances all three faults are apparent. In spite of this and the fact many serious accidents unquestionably result from this condition, some manufacturers have continued to turn out, year after year, cars with inadequate parts in the steering system, although a few minutes spent in investigating their service records would quickly prove that changes in the parts in question are imperative from the standpoint of safety and should therefore be of prime concern to the manufacturer.

One case in point is that of the threaded yoke on the cross link of several of the cheaper cars. This yoke is made of soft material and is usually split at the shank and clamped to the tube which forms the link. The thread on the tube as well as that on the yoke are often carelessly cut — perhaps purposely made a rather loose fit to facilitate easy assembly. When new, these parts are drawn up reasonably tight, but vibration soon works them loose and they wear rapidly, sometimes until the thread is nearly stripped. The owner is not apt to discover this fault until some accident occurs, for the joint in question is supposedly made up tight and is therefore presumed to require no attention, as indeed it would not were it properly made.

We know of one case in which the joint in question was found to be loose on a car only three days old. It was promptly tightened by the experienced owner, a man of good mechanical ability, but the next day was found to be quite loose again, although the bolt was still tight. The service station then attempted to tighten the joint without success, until it was finally brazed tight, thereby destroying the adjustable feature! Innumerable cases of a similar nature could be readily cited.

All movable joints in the steering system wear. Lubrication is usually inadequate and seldom properly cared for even when provision is made for furnishing oil or grease. Often wearing parts are not hardened or bushed. Hence, there is no way to make them tight when they are once worn and new parts have to be substituted. The wonder is that more accidents do not occur.

While some of the faults cited cannot be easily prevented, conditions can be readily improved in many cases with little or no increase in cost of manufacture. If slightly increased cost is necessary, is it not well worth while in parts of such vital importance?

American-built cars are often condemned, especially abroad, for inadequate brakes. In some cases the criticism is unquestionably justified. The same may be said also regarding steering connections. Safety is chiefly dependent upon brakes and steering gear, two particulars in which much carelessness is in evidence. Manufacturers certainly owe it to themselves and to their customers to better these conditions.

Painting

CONSIDERABLE trouble has been experienced in getting satisfactory paint jobs. Production men in many instances are concentrating their attention upon this phase of their work in an endeavor to combine speed, economy and quality. This is more difficult than in the case of some other units of the manufacturing process, where careful inspection can more readily determine lack of quality.

A first-class paint job must be durable as well as of good appearance. The usual inspection can easily pass upon the latter quality, but not on the first. Durability depends upon the proper combination of a number of factors.

Proper materials, improperly applied, will not give good results. Sometimes the job is rushed through the drying process too rapidly and the high gloss is somewhat dulled even though the actual durability be unaffected.

The problems of proper painting in the automobile industry are still far from being solved, and more attention is likely to be given these items in the future than has been given in the past.

Getting Better Retailers

THE next few months are likely to show up the strength and weakness of the various dealer organizations throughout the industry. Nearly every manufacturer is trying hard to improve his dealer staff and to increase its numbers. Good dealers are in great demand.

Those companies which took best care of their dealers during the depression of 1921 will now get the benefit of their fair-dealing. Dealers who have not been protected on price cuts and new models will be seeking new connections and will not find them hard to get.

One large distributor claims to have done a gross business of $2,000,000 in 1921 without having made any profit. He was not pleased with the treatment accorded him by the factory.

A long range view is always worth while in handling dealer relationships. The immediate difficulty cannot profitably be solved at the expense of permanent good-will. Many actions can be taken that are legal, but not quite fair. Usually, they do not pay.

August Will Exceed July in Output

Reports Show Better Pace Is Maintained

May Approach June—Coal Shortage Has Not Yet Curtailed Power

NEW YORK, Aug. 28—Anticipating a smart fall business, the automotive industry is not experiencing as much of a seasonal slump in production as is usually the case at this time of the year. Instead there is every indication that the August figures will show more automobiles produced in this month than during July, which was the third greatest month in a production way in the history of the industry. Returns to date from railroads, boats and driveaways show August ahead of July at this time of the month. If the pace is maintained the rest of the month, it is thought August will be within about 10 per cent of June, the record holder, which turned out 288,000.

Manufacturing Difficulties

And this big production is being maintained in the face of manufacturing difficulties out of the ordinary in the way of a scarcity of both fuel and materials. The problem of the manufacturers has been to maintain adequate supplies of some materials and parts which has not been possible in the case of some of the factories, despite the employment of aggressive "parts chasing" methods.

The industry already is feeling somewhat the effects of the coal shortage. There is no accumulation of supplies. Factories generally have been able so far to avoid curtailment because of lack of power.

With the price reduction wave apparently wholly spent, the attention of the industry has been turned to new passenger car models, of which there has been a wealth since Aug. 1. Several old line companies, whose designs have been changed only slightly, if at all, have modernized both their chassis and body construction. Many manufacturers have added more models, particularly in the sport line. The fall season will open with a rich array of automotive merchandise.

LEONARD TRACTOR GETS PLANT

JOLIET, ILL., Aug. 29—At a special meeting here of officers and stockholders of the Leonard Tractor Co., Griffith, Ind., plans were approved by which the plant here of James G. Heggie & Sons is turned over to the Leonard Tractor Co. for $250,000, the owners of the Heggie company to take stock in the Leonard company to the amount of the transaction in payment. It is planned to dispose of stock to the same amount among residents of this city in order to finance the shift of location.

TOTAL JULY OUTPUT AGGREGATED 244,444

WASHINGTON, Aug. 28—Official production figures received by the Department of Commerce give July production as 223,201 passenger cars and 21,243 trucks. With few exceptions the reports each month are from identical firms and include approximately 90 passenger car manufacturers and 80 truck manufacturers.

The production figures for the first seven months of the year with the revisions made from the published figures for May and June are as follows:

	Pass. cars	Trucks
January	81,693	9,344
February	109,170	13,121
March	152,959	19,651
April	197,221	22,227
May	232,431	23,803
June	263,017	25,985
July	223,201	21,243

Durant Awards Contract for Building Flint Plant

NEW YORK, Aug. 29—A $1,500,000 contract has been awarded by Durant Motors, Inc., for its proposed new plant at Flint, Mich., where the Flint car will be manufactured. It is expected the plant, on which construction will start at once, will be ready the first of the year. It will consist of five buildings containing 560,000 sq. ft. of floor space and have a capacity of 550 cars a day.

The main building will be 900 x 80 ft. in area and three stories in height. It will house the main offices and the assembly plant. Three of the other buildings will be of wing design. In one, a three story structure 400 x 80 ft. will be the machine shop, body department, cafe and employment office. A one-story 257 x 400 ft. wing will contain the fender, enameling and inspection departments, and a fourth 550 x 110 ft. and one-story will hold the sewing and trimming departments and the stock room. The power plant will be in the fifth wing of the group.

September Programs Show Big Increase

Some Schedules Will Be 50 Per Cent Greater Than Previously Maintained

DETROIT, Aug. 29—The industry will enter September on a generally increased production basis, some factories declaring an increase as high as 50 per cent over the totals which have been maintained since the early part of the year. The total increased production for the most part is a question of men and material as there seems to be business enough to warrant all the output the factories can summon.

Ford, Dodge Brothers and Maxwell in the lower price lines are building and selling just as many cars as can be built. Studebaker, Buick and Hudson in the middle priced field are increasing their output daily, and Hupp will make an important increase in output as new factory space is completed. Columbia Motor has just taken over the Saxon plant and is speeding up as material becomes available. Chalmers Motor will go into a large increase in production if the financing plans are approved.

Rickenbacker, Paige, Liberty, Reo and Earl are stepping up gradually. Chevrolet is prepared to go in for larger production than ever the first of the month. Oakland and Oldsmobile, with new body models, are increasing operations, and Gray and Durant are pushing factory additions to completion to meet the full demand of the fall season. In the high priced field all factories are at capacity, and this, it is declared, will be maintained throughout the winter.

Parts Business Indicates Continuance of Activity

NEW YORK, Aug. 29—That automobile manufacturers are figuring on maintaining their record breaking production pace well into the fall is indicated by a survey of the parts and accessories field, which is a good barometer of the immediate future.

This survey shows that the parts makers are not only well booked with orders and specifications up to Jan. 1, and some of them beyond that, but that within the last two weeks some twelve or fifteen of the larger concerns have had their orders materially increased, which would indicate that their customers are not expecting reduction of output.

The parts makers' orders indicate that the run right now is largely in closed cars in the medium price class. It is

(*Continued on page* 441)

Coal Shortage Looms Up Seriously

Power Curtailment Possible in Detroit

Edison Company, Chief Factor, Has Enough Supply to Meet Demand for 18 Days

DETROIT, Aug. 28.—Curtailment of power to the automotive plants in this district will be necessary if conditions do not improve within 18 days. The Detroit Edison Co. has sufficient on hand for this length of time, according to Alex. Dow, president, and will have to curtail if coal shipments are not speeded up. All plants in this city with the exception of Ford are furnished with all or the major portion of their power by this concern.

Question of Transportation

According to all authorities, the question of getting coal into the Detroit district is not one of mining the coal, but of moving what has already been mined. Even this condition is not general but is confined to the so-called coal belt railroads which operate south and east of the Ohio River. These are notably the L. & N., C. & O., N. & W. and the branches of the B. & O. operating through West Virginia. The northern roads can handle and are handling the coal turned over to them rapidly.

The coal shortage here is far more serious than the steel situation. While some of the plants complain of cars on the road two and three weeks where formerly three and four days was sufficient, in the main the shipments are coming in fairly well. The slight increase in the price of steel is not regarded as sufficient to affect materially the cost of automobiles. The average car exclusive of Ford has not more than 1,800 lbs. of steel, and consequently a $5 increase per ton would only represent a total of $7.50 per car increase in material cost. It is frequently commented on throughout the trade that in the mind of the public the automotive industry uses a far greater percentage of the steel output of the country than actual statistics prove to be the case.

Plants Have Some Coal

All of the plants have supplies for 30 to 60 days as far as heat and special power requirements such as hammer rooms, etc., are concerned. C. S. Mott of General Motors Corp. stated to-day that the average for the G. M. C. units

(*Continued on page* 444)

Business in Brief

The situation in the business world seems to be decidedly irregular, with prices threatening to climb because of anticipated higher costs of operation through increases in wages made by the steel companies.

The strike situation continues to be the most dominant factor. While there has been a slight lowering of prices of coal and coke, there has been a marked advance in metals like iron and steel. The scarcity of fuel has its effect on general business, which has been relieved slightly by light shipments of newly mined coal or the use of oil as fuel. But even with the fuel oil people there is complaint of insufficient transportation.

Soft coal production is better, the report showing 6,000,000 tons as against 4,300,000 the preceding week, although insufficient car capacity is reported.

Anticipated higher prices are expected to make for more activity in trade and industry, in marked contrast to two years ago, when higher cost of production is said to have been responsible for the collapse of values.

While some textile mills have restored former wages and steel mill workers have had pay increases, yet there seems to be a scarcity of labor, caused, it is thought, by restrictions on immigration.

Money is easy, and this is reflected in the stock market in higher prices for securities, while the glowing crop reports also have had their effect. Low prices for agricultural products, though, will tend to keep the farmer out of the market to a certain extent.

Steel prices, both crude and finished, show increases of from $2 to $10, pig iron from $2 to $3 and steel scrap from 25 cents to $1 per ton. Coke has dropped $2.

Weekly bank clearings show a loss of 8 per cent from last week, the aggregate being $5,871,487,000. Still this is a gain of 18.4 per cent over this period last year.

Car loadings of merchandise and miscellaneous freight decreased 8224, but coal loadings increased 5313. For all freight the total loadings were 852,580 cars as compared with 808,269 for the same week last year.

Ford Orders Plant Shut Down Sept. 16

Says He Will Not Re-open Until Price of Coal Has Been Lowered

DETROIT, Aug. 28—Blaming the coal shortage on Wall Street manipulators, Henry Ford has ordered the closing of his plants on Sept. 16. He states that he will not re-open his factories until he can get coal at a fair price. Telegraphic notices have been sent out to about 2,000 sources of supply to cease shipment until further notice.

A formal notice signed by Edsel Ford states: "On account of coal shortage we will be unable to operate our plant after Saturday, Sept. 16. No material will be received if shipped other than as detailed in the letter following."

It is estimated that the closing of the Ford plants will be responsible for the laying off of over 1,000,000 workmen. There are approximately 50,000 at the Highland Park plant, 20,000 at the River Rouge and other Detroit plants and 30,000 at Ford branches throughout the country. There are 1500 plants scattered throughout the country whose principal business is the supplying of parts and materials for Ford cars.

Can Get Coal for $6 a Ton

Henry Ford reiterated the statement this morning that he will not pay excessive prices for steel or coal. He states that he could get coal if he were willing to pay over the market price, and that he had been offered 60,000 tons at $6 a ton. He refuses to pay more than $4.50.

Ford has sufficient coal on hand to run until Sept. 16 and then to keep his ovens and boilers warm for an indefinite period. Ford production has been running in excess of 5,000 cars per day.

None of the other plants are affected as seriously as Ford. When asked when plants would resume, Ford stated that he had no idea and that the situation seemed to him impossible.

Hoover Disappointed

WASHINGTON, Aug. 29—Announcement of Henry Ford that he will close his plants on Sept. 16 has been a source of disappointment to Secretary Herbert Hoover. The Secretary said he hopes Ford will not feel constrained to take such sweeping action because he thinks the prices of coal are too high.

It is felt that legislation under way will control the price situation sufficiently to assure Ford that coal can be obtained at reasonable figures. It was declared

(*Continued on page* 444)

More Capital Sought by Grant and Walker

Car Maker Wants $750,000—Engine Builder's Amount to Be Determined Later

CLEVELAND, Aug. 24—After President David A. Shaw of the Grant Motor Car Corp. asked stockholders to consent to the issuance of $750,000 of bonds by the company to obtain funds to liquidate indebtedness and to provide additional working capital, it was learned that the H. J. Walker Co., which supplies engines to the Grant company, plans to obtain more funds by a new stock issue

Stockholders of the Walker company will be asked to subscribe to additional stock in an amount to be determined later. The unsold amount after stockholders are through buying will be offered to the public. A syndicate of bankers and investment houses in this city has been working on financing plans for Walker for some time. A letter to stockholders will be mailed shortly. It is said that business prospects of the company, when fully understood, make the new stock a fairly good investment.

Letter Sent Stockholders

Shaw made his appeal for authority to issue bonds in a letter which was mailed to stockholders. If consent is given by the stockholders, the new bonds will be in denominations of $25, $50, $100, $500 and $1,000. The stockholders are asked to subscribe in proportion to their stock holdings.

The bonds would be a first mortgage lien upon the assets of the corporation, to bear interest at 7 per cent and callable at $1.10. The consent of stockholders to the issue is to be obtained on the following conditions:

1. That prior to the issuance and sale of the bonds there be an agreement between the corporation and not less than 85 per cent of its creditors providing an extension to the corporation of indebtedness due the creditors and that the claims shall be paid only so fast as 40 per cent of the net profits of the corporation divided among all of its creditors will pay the same.
2. That $600,000 of the bonds shall be subscribed and purchased prior to their issuance.

Profit-Sharing Feature

Shaws says that back of these bonds would be the following property of the company: land and buildings, $890,500, and machinery and equipment, $159,500, or a total of $1,050,000. There is an indebtedness under a land contract of $214,614, which amount would be paid out of the receipts from the sale of the bond issue so as to make it possible to place a mortgage on the property.

Since a mortgage bond is rarely offered as an investment for an amount greater than one-half of the value of the security behind the issue, a profit sharing feature to the bond has been devised, because it is proposed to exceed the usual ratio of assets in the issue. Under the profit-sharing feature, 20 per cent of the net profits annually will be pro-rated over the total authorized amount of the bond issue, and the amount applicable to each bond will be paid to its owner.

This profit sharing will be continued until the bond has been redeemed or called. Should the bondholders be forced to take over the plant, it is stated that it could be rented until it could be sold without loss and at the rates now being paid for such space the income would be ample to carry the bonds up to $750,000 and show a profit beside.

TRUCKS AND TRACTORS INCREASE IN ALABAMA

MONTGOMERY, ALA., Aug. 24—According to a survey recently made by the markets division of the State Department of Agriculture, in co-operation with county agents and power equipment dealers, there are now approximately 2500 motor trucks in use on Alabama farms, and 1500 tractors, an increase of almost 100 per cent over the census of 1920, in spite of the fact that the farming industry has passed through a period of financial depression since that time. The census included only such vehicles as are actually in agricultural work.

Tractor and truck distributors in Atlanta covering the southeastern territory state that a similar survey in other states of the section would indicate about the same increases as in Alabama.

Reconsiders Purchase of Duty Truck Plant

ELGIN, ILL., Aug. 29—Persuaded to reconsider their offer to absorb the Duty Motor Truck Co. of Elgin, the American Steam Truck Co. of Chicago, it seems likely, will shortly be in possession of the plant. The stockholders of the former company, following a bitter controversy, have voted to sell out to the Chicago concern. The action of the stockholders followed several weeks of argument in which an influential minority sought to prevent it.

The Duty company stockholders elected a new set of officers before adjournment. E. A. Bell being named president; A. J. Force, vice-president and Marshall Newman, secretary-treasurer. These men also serve as directors and were empowered to handle the negotiations with the American company.

LOUIS C. STEGER DIES

FORT WAYNE, IND., Aug. 28—Louis C. Steger, member of the board of directors and director of purchases and stores for S. F. Bowser & Co., died at his home here.

Places Yellow Cabs in London and Paris

Hertz, Back from Europe, Says Company Will Not Locate Plant There

CHICAGO, Aug. 29—Announcement of the organization in London and Paris of taxicab companies to operate cabs manufactured by the Yellow Cab Manufacturing Co. of Chicago was made here by President John Hertz upon his return from a tour of England and Continental Europe.

Hertz said the London and Paris companies placed orders for 25 cabs each to begin their service. Shipments of these cabs is to begin shortly. The prospective manager of the Paris company is on his way to Chicago to become associated for a time with the Yellow Cab Co. of Chicago to learn the principles of operation which have been largely responsible for the growth of Yellow cab service in Chicago and other cities.

Hertz said the Yellow cab service in the two European capitals would be far superior to anything they now have, and he believes the vehicles will become so popular that the service will grow rapidly and provide a constant foreign market for Yellow cab products. He said the Chicago company can manufacture the cars and deliver them in Europe much cheaper than they can be produced there, and that his company has no intention of establishing a European factory.

Holmes at Work on Plans for Refinancing Company

CANTON, OHIO, Aug. 28—Plans for reorganizing and refinancing the Holmes Automobile Co. are being worked out by a committee consisting of Edward Langenbach, chairman; Norman C. Raff, Charles A. Kolp, William T. Kuhns, R. V. Mitchell, I. M. Taggart and Raymond Loichot. A meeting of stockholders and others interested will be held preliminary to the stockholders' meeting on Sept. 6, when final plans will be consummated.

In connection with the refinancing and reorganization plan, another announcement of special interest made during the past week was that the Holmes company has completed a new four-cylinder air-cooled car, which has been developed by the company during the past year under the direction of Thomas M. Kearney. It is expected that the car will sell for approximately $1,200.

MOTORCYCLE RECEIVERSHIP

READING, PA., Aug. 28—A receiver for the Reading Standard Co., manufacturing the Reading Standard motorcycle, has been appointed, the court naming Arthur E. McGavin, president of the concern. Assets are placed at $291,743 and liabilities at $694,240.

Gasoline Data Given in Committee Report

Opinion on Price Changes Reserved Until Hearing Has Been Concluded

WASHINGTON, Aug. 28—Considerable disappointment has been expressed over the preliminary report of Senator McNary from the sub-committee of the Committee on Manufactures relative to the prices in the oil industry. It was expected that the committee would express an opinion as to the price changes in gasoline and other oil products. The report stated that the full significance of the price changes are reserved for further consideration and report after the answers to all questionnaires have been received and considered and the necessary witnesses called and examined.

The report deals with data prepared by governmental agencies and supplemented by reports from various refiners. The committee calls attention to the fact that there is a distinct tendency toward stocks accumulating in a comparatively few hands. As to the future supply of gasoline the sub-committee said, "Any estimate of the length of time an existing supply of gasoline will last is of little use, unless the supply of crude oil at the same period is also taken into consideration."

Gasoline Prices Still High

The committee points out that it has not so far formed any opinion upon the controverted matters submitted to it. He says further:

While the recent cut in crude oil is reflected to some extent in lower gasoline prices, still gasoline prices both f.o.b. refinery and tank-wagon prices, are higher than they were during a considerable portion of the period when crude oil was selling at $2 a barrel. It may be in explanation that gasoline is still being manufactured by the larger concerns from the stocks of high-priced crude on hand at the time the recent cut in the price of crude was made.

If this explanation is correct, and the proper proportion existed between the $2 crude and the price of gasoline and its other products, then it would seem reasonable to expect a further lowering of the price of gasoline as a result of cutting the price of the crude from $2 to $1.25 a barrel.

Agricultural Districts Should Offer Greatest Field for Development of Sales

By E. V. RICKENBACKER

Vice-president in charge of sales of the Rickenbacker Motor Car Co.

Detroit, Aug. 28.

Only the most abnormal conditions can prevent the automotive industry from finishing out this year in a flood of business, which will continue through all of the next year and well on into the summer of 1924. When I say abnormal I mean another war or something else equally cataclysmic which it is impossible to foresee. The natural progress of economic cycles indicates prosperity will continue until the market on cars has again been caught up with and this will not occur until 1924.

The industry is now working on a gusher in the form of closed car demand. Practically every owner of an open car at this time is in the market for a closed vehicle, and this, in addition to the regular run of new business and replacement demand, is keeping operations at capacity. It would not surprise me in the least if three years from now the demand for open vehicles had dwindled to ten per cent of all cars in production.

There will be plenty of business for the industry from the farm regions of all parts of the country. The substantial farmer is already out of the financial woods, and his smaller brother's credit is good at the banks again, because even though he cannot meet his obligations in full with this year's crops proceeds, the banker can see the day close at hand when he can. The market for farm produce has been restored to a firm basis and bankers are forgetting their timidity. We have ample evidence of this all the time from our distributors throughout the country.

The industrial section of the country has taken 75 per cent of the cars this year to date, and the metropolitan areas are now pretty well caught up, though there is still steady demand. Business from the farm districts adjacent to the metropolitan centers is now developing largely, but the more remote farming districts are still to be heard from. Normally the industrial section of the country should take 55 per cent of all cars and the rest of the country 45. I am certain that business will resume along this normal basis beginning this fall and continuing through to 1924.

The increase in wages in the steel industry announced last week should have a steadying influence on prices of cars.

Manufacturers of cars will find it more and more important all the time to consider the resale value of their cars. This means both a consideration of price and of changes in model. It is an important selling point in any car to show that it has a high resale value, and this can only be established by maintaining list price levels, and making improvements in the car constantly, without the formality of new models.

Cyclone Motors Placed in Hands of Receiver

GREENVILLE, S. C. Aug. 28—The Cyclone Motors Corp., formerly known as the Cyclone Starter & Truck Co., has been placed in the hands of receivers. The court named C. G. Eidson, president of the company, Frank J. Leigh and Ricketts as receivers. The action against the company was taken in behalf of the Hardwood Lumber Co. of St. Louis, the Greenville Mantel and Mfg. Co. and Albert Barnes of Greenville. The petitioners assert that the company has assets approximating $500,000 with liabilities of $200,000.

The Cyclone company began business about two years ago with an authorized capital stock of $1,000,000, a great deal of which was sold in South Carolina and various other states to a large number of stockholders. No starters ever were manufactured here although the company put out starters produced by other factories. The local plant was devoted principally to the manufacture of Cyclone trucks, a number of which were sold here.

Work Started by Doble on First Unit of Plant

SAN FRANCISCO, Aug. 28—Ground has been broken at Atascadero and work started on the first unit of a factory to be built for the Doble Steam Motors Corp., which will be completed in four months. The plant is to be of reinforced concrete construction, with 90 per cent of the wall area of glass incased in steel frames. The ground floor will cover an area of 60,000 sq. ft.

The Doble company is a $10,000,000 organization to build the Doble steam car designed by Abner Doble, who is president of the company. The directors include W. A. Doble, Jr., and Warren Doble, who control the Doble Laboratories; Harold Haven and F. G. Lewis.

One-Man Top Features Ford; Shield Changed

DETROIT, Aug. 28—A one man top, slanting windshield and gypsy side curtains are now regular equipment on Ford cars coming through from the factory and assembling plants. It is understood that the change has been in contemplation for some time and production facilities are now completely worked out.

The slanting windshield, in addition to adding to the appearance of the car, gives increased comfort due to the fact that it can be opened and adjusted to any angle at both top and bottom. In making the change in the windshield, it has been possible slightly to change the cowl lines and the rake of the instrument board. No change in prices is made with the new equipment.

CHANGES IN TEMPLAR

CLEVELAND, Aug. 28—The new Templar coupe, which replaces the present job, is mounted on the standard chassis. It has seating accommodations for four, the seats being staggered, but the doors are in line. The interior is trimmed in plain dark blue broadcloth, and option of dark blue or Brewster green are to be had on the body. The rear deck has an opening covered with a watertight lid, this being secured with three locks.

World Wide Interest Created in Gliders

Hentzen Carries Off Honors on Last Day of Meet at Gersfel

NEW YORK, Aug. 28—The completion of the motorless aviation meeting at Gersfel, Germany, has aroused a world-wide interest in gliders, which, it is expected, will be greatly enhanced on this side of the Atlantic through the announcement that Glenn Curtiss has built a glider and will try it out shortly in Great South Bay, New York. Curtiss, however, will work on the theory that better results can be obtained in over-water gliding than over land, such as the German trials were.

Hentzen, the student aviator, carried off the honors at the meeting at Gersfel, being declared the winner of the grand prize of 50,000 marks, as well as receiving 15,000 marks for the best minimum average in dipping and speed and 12,000 marks for the longest straightaway flight. Hackmack, Botsch and Martens were other prize winners.

Hentzen's greatest achievement was accomplished on the last day of the meet when he established a new record for sustained flight by remaining in the air more than three hours, which betters his own mark of 2 hr. 10 sec. made during this same meet.

Not many details of glider construction have come out of Germany as yet, although it is known that Hentzen's glider has immovable wings, while the Darmstadt plane uses an elevation rudder. Pneumatic cushions are fitted to the bodies of the planes to ease the shocks of landing.

Anderson Output Taken; Company to Enlarge Plant

ROCK HILL, S. C., Aug. 28—Ample evidence of the steady improvement the automotive industry has experienced over the country the past several months was demonstrated at the convention of dealers of the Anderson Motor Co. at the factory here Aug. 24, when dealers contracted for practically the entire output of the factory for the year.

Within ten minutes after the new model Anderson lightweight aluminum six was shown, contracts had been signed for 4225 cars of this model alone. As present capacity is only 5500 cars annually, officials advised the dealers that plans to expand are contemplated.

BUSINESS CONGRESS AT TULSA

TULSA, OKLA., Aug. 28—The automotive industry will be represented at the meeting of the Southwestern Business Congress, which will be held here Oct. 18-19. Twenty-five prominent men in the country, including a member of President Harding's cabinet, have been asked to speak, which will bring together representative business men from Oklahoma, Missouri, Arkansas, Kansas and Texas. The congress will be held under the auspices of the Tulsa Chamber of Commerce, Northwestern Oklahoma Chamber of Commerce and the Oklahoma Chamber of Commerce.

ASKS DYER THEFT LAW TO INCLUDE EXPORTS

NEW YORK, Aug. 28—A movement to interest Congress in adopting an amendment to the Dyer law which now makes it a felony to take a stolen car across a state line has been started by the National Auto Anti-Theft Association.

The proposed amendment would forbid any steamship line issuing its bill of lading for the transport of any car, whether or not boxed, until its engine and factory numbers have been certified by an inspector of customs as intact and recorded, and until it has been certified as not being on the list of stolen cars which will be required to be kept posted in the office of the collector of customs of each port of entry in the United States.

Empire Tire Will Be Sold Sept. 13 as Going Concern

TRENTON, N. J., Aug. 28—By order of United States District Judge Bodine, the real and personal property of the Empire Tire & Rubber Corp. will be offered for public sale by the receivers, Arthur H. Woods and C. E. Murray, Jr., Sept. 13. All bids received then will be reported to the court on Oct. 2. Bids must be accompanied by a certified check for $100,000.

The Empire company has been in a receivership since March 31, 1920, and has been a going concern all this time. The plant has been operating on a 24 hours a day basis for the last ten months. The value of the plant itself approximates $750,000, but it is said the worth of the corporation is around $2,000,000. It is expected that there will be at least two bidders—the creditors' committee and the old organization, which is headed by J. Cornell Murray and William Pepper. No change in business methods or management will be made, it is said.

FORD BRANCH FOR FLORIDA

ATLANTA, Aug. 28—According to an announcement in Atlanta, the Ford Motor Co. expects to start the construction of a branch assembling plant at Jacksonville, Fla., within the next few months, to handle the business of the dealers in South Georgia, Southeastern Alabama and Florida. Plans for the factory have already been drawn, according to Slocum Ball, manager of the Jacksonville branch.

Aeronautical Body Names Uppercu Head

Chamber of Commerce Has Annual Meeting—Aircraft Association Elects Williams

NEW YORK, Aug. 28—I. M. Uppercu of the Aeromarine Plane & Motor Co. has been chosen to head the Aeronautical Chamber of Commerce of America for the next year, succeeding Grover C. Loening, while the new president of the Manufacturers' Aircraft Association, Inc., is G. M. Williams of the Dayton-Wright Co., advanced from the vice-presidency to succeed J. K. Robinson, Jr. Both organizations held their annual meeting here to-day, at which officers for the ensuing year were elected.

The Aeronautical Chamber of Commerce was reported to be in a thriving condition and showing a steady growth. Among the new members added at the meeting were the B. F. Goodrich Co., Akron; Goodyear Tire & Rubber Co., Akron; Wolverine Lubricants Co., New York; Rich Tool Co., Chicago, and Mosler Metal Products Corp., Mount Vernon, N. Y.

Personnel of Board Changed

Several changes were made in the personnel of the new board. Its size was increased from eleven to fifteen directors through the election of I. M. Uppercu, G. M. Williams, W. C. Young and Charles L. Lawrance. This new board, after selecting Uppercu as president, named the rest of the chamber officials as follows:

First vice-president, Charles L. Lawrance, Lawrance Aero-Engine Corp., New York; second vice-president, C. C. Witmer, Airship Manufacturing Co. of America, Hammondsport, N. Y.; third vice-president, Lawrence B. Sperry, Lawrence Sperry Aircraft Co., Farmingdale, L. I.; treasurer, Charles H. Colvin; Pioneer Instrument Co., Brooklyn; general manager and assistant treasurer, S. S. Bradley; secretary, Luther K. Bell, and assistant secretary, Owen A. Shannon.

Aircraft Association Selection

The meeting of the Manufacturers Aircraft Association elected the following directors:

A. H. Flint, L. W. F. Engineering Co., College Point, L. I.; F. L. Morse, Thomas-Morse Aircraft Corp., Ithaca, N. Y.; F. B. Rentschler, Wright Aeronautical Corp., Paterson, N. J.; J. K. Robinson, Jr., Gallaudet Aircraft Corp., East Greenwich, R. I.; F. H. Russell, Curtiss Aeroplane & Motor Corp., Garden City, L. I.; I. M. Uppercu, Aeromarine Plane & Motor Co., Keyport, N. J.; J. G. Vincent, Packard Motor Car Co., Detroit; C. M. Vought, Lewis & Vought Corp., Long Island City; G. M. Williams, Dayton Wright Co., Dayton.

Officers were elected as follows: President, G. M. Williams; vice-president, F. B. Rentschler; secretary, Chance M. Vought; treasurer, F. H. Russell; general manager and assistant treasurer, Samuel S. Bradley.

Milwaukee Recovers From July Let-Down

Gain Is Expected for August—Car Builder Places Big Rush Order

MILWAUKEE, Aug. 28—Operations of passenger car and motor truck factories, engine, frames and parts shops, and manufacturers of automotive equipment at this time average at least equal to the high record achieved earlier in the year. A seasonal let down in July, which affected only a part of the industries, has been overcome in the last two or three weeks, with the result that by Sept. 1 it is figured production will average a substantial gain which will hold at least until the close of the year.

One of the largest malleable iron shops in Milwaukee, it is understood, has received in the past week rush specifications from a large passenger car builder in the Middle West which require day and night operations for at least three months, with prospects of a continuation until past midwinter. This shop has been busy at capacity with a full day shift on overtime schedules for eight months or longer and has not experienced any slackening within that period.

Parts Force Increased

A large manufacturer of automotive parts has added 500 men during the past thirty days. While a few shops have made no appreciable gains in number employed, there have not been any perceptible losses through decline in orders.

Manufacturers of machine tools, principally milling machine, in this district report that the automotive industries continue to be their main source of new business, and demands snow a well sustained increase from week to week.

The passing of the coal strike trouble and resumption of shipments from lower Great Lakes ports to Milwaukee has created more optimism regarding the future, although the serious situation in the railroad labor circle remains a source of apprehension and worry. However, confidence is generally expressed that freight traffic conditions probably will not grow much worse, and even if they do, the industries will be fairly well fortified in falling back upon motor transport, which by the same token is very liable to experience a decided boom through such a contingency.

Expect Results from Fair

With the annual Wisconsin State Fair opening here to-day, distributors as well as dealers look for a definite increase in wholesale and retail sales, perhaps not so much in Milwaukee, but throughout the state. This event, due to the peculiar conditions obtaining at present, is expected to bring about a genuine revival in farmer demand, which has been slowly but surely developing after an extended period of slackness.

Locally retail sales are increasing as prospective buyers are being acquainted more and more with the true effect of price reductions recently established and a better consciousness aroused by merchandisers.

Pressure of railroad strike conditions and the consequent struggle to obtain cars, as well as slow movement to destination is causing more and more interest in motor trucks, especially for short haul transit. Motor truck plants here report sales in the last 30 days again considerably higher than in the previous similar period, with heavy gains over corresponding periods in 1920 and 1921.

SALES BY M. A. M. A. MEMBERS FOR JULY REACH TOTAL OF $41,001,670

NEW YORK, Aug. 29—No apparent seasonal slump has been experienced by members of the Motor and Accessory Manufacturers Association, reports of sales for the month of July showing a decrease of only 2.42 per cent over June. The total sales for July aggregate $41,001,670, as against $42,000,000 for June. Comparing July of this year with the same month in 1921, it is noted that this year's July business is roughly 77 per cent better.

Collections are slower, the past due column showing $3,423,850 on the books, as against $2,840,000 for June, a sharp increase of 20.42 per cent. Notes outstanding aggregate $2,217,670, a decrease of 4.49 per cent, which shows liquidation activity.

Total sales for the first seven months of 1922 reach a total of $228,501,670, as compared with $136,096,214 for the same period of 1921.

The following table shows the sales by members of the association, the total of past due accounts, and the total of notes held for all the months of 1921 and the first seven months of 1922:

1921	Total Sales	Per Cent Change	Total Past Due	Per Cent Change	Total Notes Outstanding	Per Cent Change
January	$6,264,587	.. ..	$8,099,727	.....	$4,359,871	.....
February	10,408,962	66.15 Inc.	6,717,165	17.07 Dec.	6,069,118	39.08 Inc.
March	20,120,386	93.30 Inc.	5,603,992	16.57 Dec.	5,069,877	16.38 Dec.
April	26,746,580	32.93 Inc.	5,352,271	4.49 Dec.	5,371,086	5.94 Inc.
May	26,781,350	.13 Inc.	4,505,176	15.64 Dec.	4,460,355	16.77 Dec.
June	22,703,414	15.19 Dec.	4,720,973	4.79 Inc.	4,012,670	10.37 Dec.
July	23,096,214	1.68 Inc.	5,242,046	10.79 Inc.	3,690,154	7.90 Dec.
August	23,397,640	1.31 Inc.	4,348,790	17.06 Dec.	3,494,510	5.30 Dec.
September	23,141,891	1.09 Inc.	4,358,545	.22 Inc.	3,677,500	5.24 Inc.
October	22,053,327	4.70 Dec.	4,512,680	3.54 Inc.	3,463,500	5.82 Dec.
November	18,998,490	13.85 Dec.	4,352,000	3.56 Dec.	3,661,900	5.73 Inc.
December	14,349,750	24.47 Dec.	4,220,450	3.02 Dec.	3,384,250	7.58 Dec.
1922						
January	17,320,000	20.61 Inc.	4,450,000	5.45 Inc.	3,146,000	7.02 Dec.
February	22,720,000	31.17 Inc.	4,070,000	8.57 Dec.	3,483,000	10.74 Inc.
March	28.670,000	26.14 Inc.	2,890,000	28.86 Dec.	2,657,000	23.69 Dec.
April	33,830,000	18.07 Inc.	3,000,000	2.00 Inc.	2,500,000	1.5 Dec.
May	43,700,000	28.06 Inc.	2,900,000	2.75 Dec.	2,450,000	6.5 Dec.
June	42,000,000	3.85 Dec.	2,840,000	1.25 Dec.	2,320,000	5. Dec.
July	41,001,670	2.42 Dec.	3,423,850	20.42 Inc.	2,217,670	4.49 Dec.

Lafayette Starts Work on Milwaukee Factory

MILWAUKEE, Aug. 28—Actual construction work on the new plant of the Lafayette Motor Car Corp., Indianapolis, adjoining the four-cylinder car division of the Nash Motors Co. at Milwaukee, was started during the past week. It is hoped to have the first buildings ready to receive the equipment of the present plant by Dec. 1 and the entire new works in running order by Jan. 1.

An investment of $500,000 is represented by the present construction and equipment program, with other units projected for 1923 and 1924 involving more than $1,000,000. The Lafayette plant will be located at Clement and Oklahoma Avenues, and the initial building will cover an area of 200 x 650 ft., one, two and three stories high.

Steel to Be Used First in New Martin $250 Car

SPRINGFIELD, MASS., Aug. 29—Preparations are complete for the manufacture of the Martin two-passenger car to sell for $250. Revised plans call for steel instead of aluminum construction at first, though it is hoped conditions will make it practicable to bring out the lighter car later within the desired cost limits.

C. H. Martin, president of the Martin Motor & Trailer Corp., says that the car has met all preliminary tests, and it is purposed to put it in production this fall. An issue of $250,000 in 10 year, 7 per cent debenture gold bonds has been authorized.

Parts Business Indicates Continuance of Activity

(*Continued from page* 436)

surmised, however, that the car makers, figuring on strike complications, are stocking their parts bins now as heavily as possible. Parts makers are feeling the crimp of the rail strike. Shipments have been hampered and steel is hard to get because the mills are not producing much material. Still most of the parts makers are running their plants to capacity and are feeling jubilant.

There have been few cancellations of orders and business conditions generally are good.

Men of the Industry and What They Are Doing

Sloan, Raskob, Swayne Return

Alfred P. Sloan, Jr., vice-president of the General Motors Corp. in charge of operations, J. J. Raskob, vice-president and chairman of the finance committee and Alfred H. Swayne, vice-president in charge of banking relations, who have been abroad for the last seven weeks returned last Wednesday on the Majestic.

Clarke Goes to Exposition

Louis S. Clarke, founder of the Autocar Co., Ardmore Pa., accompanied by Mrs. Clarke, has sailed for Rio de Janeiro, Brazil, to visit the Brazilian Centennial Exposition and travel through the country. He goes to the exposition as the official representative of Governor Sproul of Pennsylvania.

Rabb Sails for Rio

W. Y. W. Rabb sailed on the Pan America last week for Rio de Janeiro, Brazil, where he will reside, as general agent for South America for the Autocar Co., Ardmore, Pa., during the period of the Brazilian Centennial Exposition. This move marks the entry of the Autocar Co. into this export field. Rabb has arranged an exhibit of 380 sq. ft. which will display a 1½-2-ton four-cylinder truck and two working exhibits, a complete cutaway rear axle and a crankcase with the oiling system operating electrically. Rabb was organizer and president of the Buffalo Foreign Trade Club, formed two years ago, and in addition to representing this body officially at the exposition, he goes as the representative of the Buffalo Chamber of Commerce. For several years he was export manager for Pierce-Arrow.

Aguirre Back From Caribbean

J. V. Aguirre, manager of the export department of the Mason Tire & Rubber Co., Kent, O., recently returned from a five months trip through Mexico, West Indies and all countries bordering on the Caribbean Sea. Aguirre reports improvement in the automotive business in all countries visited, owing to the higher value of local currencies and recent increase in the price of leading agricultural products, such as sugar, coffee, cocoa and tobacco.

White, USL Vice-President

John A. White has been appointed a vice-president of the U. S. Light & Heat Corp., manufacturer of USL storage batteries. White has been engaged in storage battery sales work continuously for more than 23 years. In December, 1908, he went with the National Battery Co. as manager of its Boston office, continuing as manager of this office when the National Battery Co. was absorbed by the United States Light & Heating Co. He remained at Boston until 1916 and was then made manager of the Chicago office. On Jan. 1, 1917, he was appointed sales manager of the battery department, with headquarters at the USL factory in Niagara Falls, where he will continue to be located as vice-president in charge of sales to manufacturers.

Mason is Works Manager

George W. Mason has been named as works manager of the Maxwell Motor Corp. He has had a wide range of experience in manufacturing with the Studebaker Corp. and Dodge Brothers prior to his last year with the Maxwell organization, and during this period he also was one of the principal executives in the American Auto Trimming Co. He developed rapidly also in the Dodge Brothers leather business, later becoming general superintendent of that factory as operated by the Central Leather Co.

Changes in International Nickel

Thomas H. Wickenden and Charles McKnight, Jr., have recently joined the development and research department of the International Nickel Co., New York City, to undertake development work in connection with alloy steels. Wickenden was for many years associated with the Studebaker Corp. as engineer in charge at their South Bend plant, and more recently associated with the Zeder-Skelton-Breer Engineering Co., in a consulting capacity. McKnight was formerly works manager of the Carbon Steel Co. and engaged for many years in the production of alloy steels.

Hundt With Globe Machine

J. F. Hundt, formerly district manager for the Wainwright Engineering Co., has joined the staff of the Globe Machine & Stamping Co. of Cleveland and will represent it in a sales way in the West, while W. F. Edwards, the company's national sales representative, will look after the East.

Tracy Directs Paul Sales

R. B. Tracy, for many years with Michelin, has been appointed director of sales for the Paul Rubber Co., Salisbury, N. C., which recently opened a new plant, equipped with modern machinery for the manufacture of casings and tubes. In addition, the Paul company has taken over a factory at Charleston, W. Va., where the Tirometer valve will be made.

Hunt Joins Rayfield

George H. Hunt, formerly manager of Stromberg Motor Devices Co., and for the past three years sales manager of the Disteel Wheel Corp, is now in charge of Rayfield carbureter sales to manufacturers of passenger cars and trucks. Hunt has offices in the David Whitney Building, Detroit.

Shirley With "X" Laboratories

John S. Shirley has been appointed advertising manager of the "X" Laboratories, manufacturer of "X" Liquid. He has been in the advertising field for the last 15 years, twelve of which were spent with the Fercival K. Frowert Co. of New York and Philadelphia as copy-writer, rate and plan executive, special account representative and general manager.

Pederson Joins Franklin

Harold G. Pederson, for two years factory superintendent of the Kelsey Wheel Co., Windsor plant, has resigned to join the factory staff of the Franklin Automobile Co., as assistant to the master mechanic.

Hawk Goes with Baker

A. T. Baker & Co., Inc., announces the appointment of Homer V. Hawk as exclusive representative in charge of the sales of the company's products for the automobile trade. Hawk for eight years served as purchasing agent of the Willys-Overland Co. and prior to that was associated with the Kinsey Manufacturing Co. and the old Stoddard-Dayton Co. in Toledo. A. T. Baker & Co., Inc., established in 1888, has catered almost exclusively to the upholstered furniture trade until the last few years. The company has for several years been experimenting in the manufacture of a fabric suitable for the automobile trade.

Stockholder Brings Suit Against Majestic Tire

INDIANAPOLIS, Aug. 26—Appointment of a receiver for the Majestic Tire & Rubber Co. of this city was asked in a friendly suit filed in Superior Court here by George O. Wildhack, president of the Wildhack Co., Reo distributor, who holds 252 shares of the Majestic stock. Wildhack bases his claim on a debt of $600 said to be salary owed him as secretary-treasurer of the tire company.

The suit alleges that, while the tire company is not insolvent, its working capital is not sufficient to produce the tires and other rubber goods for which it has orders. The assets of the concern are said to be considerably greater than the liabilities. It is claimed that there is an aggregate indebtedness of $235,595 due to conversion of the company's capital into plant and equipment and materials.

The value of the plant including equipment is estimated at $362,884. Serious depreciation, the suit says, threatens the property, and a receiver should be appointed to conserve the assets. The suit recommends that the company continue production.

Rufus H. Syfers is president of the company; Edgar B. Oscars, vice-president, and Doris Hopps, assistant secretary-treasurer.

Five Tariff Items Interest Industry

One of Them Refers to American Made Trucks Intended for Reimportation

NEW YORK, Aug. 29—Members of the National Automobile Chamber of Commerce are asked by General Manager Alfred Reeves, in a bulletin just issued, to study those sections of the tariff bill that pertain to the automotive industry and to express their views to the Senate and House conferees, who are whipping the measure into shape for final consideration by the two houses. It is expected that the bill will be ready for President Harding's signature about the middle of October.

Bargaining Feature

The bulletin draws attention to the five clauses in the bill that have a direct bearing on the industry. Two of these contain the bargaining features which will enable the American manufacturers to stand the lowering of the duty on foreign cars. One of these, called clause C in the bulletin, as passed by the House, provides a bargaining duty ranging from 25 per cent to as much as 50 per cent on motor vehicles from manufacturing nations that impose more than 25 per cent duty on American cars. The Senate, however, struck out this clause so that it now is subject to debate on the part of the conferees.

The other, clause B, into which the Senate has written general administrative provisions which would broaden the powers of the tariff commission and give the president power to increase duties to a maximum of 50 per cent or prohibit importations wherever findings of fact or discriminations against the United States foreign trade warrant, contains provisions not found in the House bill.

If passed, both of these clauses, the bulletin states, would benefit the automotive industry. The power of clause C could be invoked only in the case of other nations which manufacture cars. If any of these should charge a higher tariff than the American, it would be possible to raise the American rate to the same level.

Gives President Power

Clause D is broader in its scope in that it gives the President power to prevent tariff discrimination on the part of countries which do not manufacture automobiles. Such countries can be reached through raising duties on other articles.

Another important section is the one proposing a duty of 90 per cent ad valorem on re-imported passenger cars and trucks. This pertains to motor vehicles exported from the United States prior to Feb. 11, 1919, for the American Expeditionary Forces or the governments with which America was associated in the war. There are more than 30,000 such motor trucks in from fair to bad condition in the hands of concessionaires in France alone and it is to prevent the re-importation of these that this high duty of 90 per cent is desired. Such a re-importation duty was accepted in principle by the House in the Graham resolution. It was not included in the tariff bill passed by the house and therefore is subject to debate in conference.

The other two items which hold the attention of N. A. C. C. members are the house provisions of 5 cents per pound for aluminum scrap and 9 cents for sheets, plates, etc., which are unchanged in the Senate bill and therefore not subject to further debate; and the House provisions on anti-friction balls and rollers, metal balls and rollers commonly used in ball or roller bearings, etc. These provisions have been retained at 10 cents per pound but the added 35 per cent ad valorem duty has been increased to 55 per cent, so that the difference in the ad valorem duty is subject to debate in the conference.

Receiver Is Appointed for Burton Engineering

CINCINNATI, Aug. 28—Edward J. Harth has been appointed receiver for the Burton Engineering & Machinery Co. as the result of a suit filed by William C. Armstrong, owner of the plant and machinery used by the company.

The suit charges that the company has not held a stockholders' meeting for some time, and that, due to the business depression, a large part of its capital has been exhausted. Since conditions improved, it is asserted, the company has been hindered by lack of funds.

According to Armstrong, the company has other creditors who are threatening to bring suit, and its assets are in danger of being sold to pay court judgments. If the firm is permitted to continue its business so that its assets can be disposed of in the proper manner, he says, it will be able to meet all its obligations.

Armstrong states that the company has an authorized capital stock of $500,000, divided equally into preferred and common stock, of which $340,000 has been issued. The company is engaged in the manufacture of gasoline engines for tractors.

CEYLON MAY RAISE DUTY

WASHINGTON, Aug. 29—A cablegram received to-day by the Department of Commerce from Consul M. M. Vance, Colombo, Ceylon, states that a bill has been presented to the legislative council proposing an increase of from 7½ per cent to 20 per cent ad valorem in duties on automobiles and motorcycles.

HAYES GETS DURANT ORDER

DETROIT, Aug. 29—Hayes Wheel Co., of Jackson, Mich., has secured the contract for supplying wheels to the Durant Motors Corp. This order takes in the complete line, including the Durant fours and sixes, the Flint and Star. It is said to be the largest order for wheels ever secured by one wheel manufacturer.

Employment Gained 1.6 Per Cent in July

Amount of Pay Roll for Month, However, Showed Decrease from June

WASHINGTON, Aug. 25—Comparison of employment in 40 identical automobile establishments during June and July showed an increase of 1.6 per cent in the number on the payroll, but a decrease of 1.1 per cent in the amount of the payroll. The survey was taken on the basis of one week. The 40 establishments in June employed 104,889 men and in July 106,619. The payroll in June was $3,405,112 as against $3,366,115 in July.

The figures of July, 1922, compared with July of last year show that a number of persons employed in the automobile industry increased 21.5 per cent and the amount of the payroll increased 18.2 per cent during the year.

Forty-two establishments reported in July, 1921 and July, 1922. The number on the payroll in July, 1921, was 89,714. The amount of the payroll in July, 1921, was $2,898,614.

Earnings Are Smaller

Comparison of per capita earnings in July, 1922, and June, 1922, shows a decrease of 2.7 per cent in the automobile industry.

These figures, which were compiled by the Bureau of Labor Statistics, will be expanded from time to time. The plan for the expansion is not yet fully under way, but returns for July have been received from approximately 1000 of the newly added establishments.

Shipments Show August Gain to Exceed 20,000

NEW YORK, Aug. 31—Estimates based on shipping reports for the first three weeks of this month received by the National Automobile Chamber of Commerce show that the July production of 244,444 will be exceeded by more than 20,000 by the month of August. Last year August production exceeded July by 4,445, the figures being 176,340 in July and 180,785 in August, 1921. Thus July, 1922, exceeded the same month a year ago by 38 per cent, while August apparently will increase over August, 1921, by something like 50 per cent.

Production of cars and trucks for the entire industry during the first seven months of 1922 reached 1,395,066 compared with 1,668,550 for the entire year of 1921.

The export situation continues to show improvement. Passenger car exports in May exceeded April by 6 per cent and June exceeded May by 15 per cent. The revival of the truck business abroad continues to be affected by the disturbed industrial conditions in Europe. Exports in May, however, exceeded April by 36 per cent; June exports of trucks decreased 7 per cent under May.

Cleveland Purchased Supply for All Year

Had Fuel Delivered, Too, Before Transportation Became a Problem—No Closing

CLEVELAND, Aug. 29 — Cleveland automobile manufacturers and parts makers regard the coal situation at the present time as most serious to the industry of the city, but none interviewed is in immediate danger of shutting down on account of lack of fuel.

In many instances purchasing agents took their cues last spring and went into the market and purchased supplies for the entire year and had it delivered before transportation became a problem.

Others have purchased electric power from the Cleveland Electric Illuminating Co. as a means for evading trouble that comes periodically through labor troubles in the coal mining industry and in transportation. The illuminating company says only a most serious situation would cause it to curtail the amount of power for plants. Still others laid in big supplies of fuel oil and have burners installed ready for use, should coal give out.

Small Plants May Close

In the plants that have electric power and fuel oil burners, the only trouble possible to come from the coal situation is failure to obtain sufficient coal to heat plants, but that is considered generally a remote possibility.

The situation thus outlined applies to those manufacturers who are big and strong financially and were able to buy coal early and to change over to other sources of fuel. There are smaller concerns that have limited supplies of coal, from two weeks to a month, on hand that will be forced to shut down unless relief comes.

The automobile manufacturers say parts makers appear to be in good shape generally, because they have not received any reports of inability to furnish parts ordered. Should the Ford plants remain closed for any length of time, several large accessory manufacturing establishments in this city that do business with the Detroit manufacturer would be affected seriously.

Say Prices Are Excessive

Automobile makers here are up in arms against the prices that are being asked for coal at the mines. They say they are too high. Under most favorable conditions that may come, they expect coal to be scarce until lake navigation closes, the middle of November. Until then, water shipments for northwest states will have preference. They expect the situation to begin to clear up around Dec. 1. Here is what some of the largest car manufacturers here say:

Peerless: Not worried about coal; have enough to last till first of the year.

Winton: Have a 30 days' supply of coal, but have a good supply of fuel oil and burners installed, so that the company has no fear of shut-down soon on account of lack of fuel. Company can get coal by paying a premium, but is not inclined to do so.

Jordan: Not bothered by the coal situation as the company buys electric power from the Cleveland Electric Illuminating Co. Uses small amount comparatively for heating and is able to supply that need.

Chandler: Company uses coal only for heating plant and has used electric power since the plant was started. Can get coal for heating by paying $6 at mines, but has enough to sit tight for a time.

Stearns: Bought a big supply of coal last spring. Has enough on hand not to cause much trouble immediately. Also has good supply of fuel oil. No immediate danger of shut-down or curtailing force.

Templar: Bought coal last spring at $1.90 a ton and has enough of it to last until first of year, when it figures coal will be cheaper. Would shut down plant before it would pay $7 and $8 a ton at mines, present quotations.

Ford Orders Plant Shut Down Sept. 16

(*Continued from page* 437)

that Ford uses 3800 tons of coal daily and produces approximately 5200 cars in that period. Even if he pays $2 a ton more for coal than the $4.50 price, it was stated, that added production cost of a Ford would be not more than $1.50.

One reason for the view taken of Ford's action is not this single move itself as applied to the Ford plant, important as it is, but that it might be accepted as a symbol of far-reaching and serious consequences. Thought was given to its establishing a precedent for other big industrial employers and consumers that would slacken production in the iron and steel and many allied lines, develop much unemployment during the winter and cause general distress throughout the country.

On the other hand, the administration plainly is hoping that the coal and rail strikes, inevitable causes of rising costs and prices, will not develop a period of wild inflation, such as occurred in 1920 followed by sharp and demoralizing liquidation.

Studebaker Not Affected

SOUTH BEND, IND., Aug. 29—President A. R. Erskine expects to operate all of the Studebaker plants to full capacity for an indefinite period. He reports enough coal on hand to operate for 10 weeks and believes he can get more fuel when the present supply is exhausted. The parts makers from whom he buys are not seriously threatened, either.

"There is no reason and can be no reason for curtailment of our operations at any of our plants," Erskine says.

Power Curtailment Possible in Detroit

Edison Company, Chief Factor, Has Enough Supply to Meet Demands for 18 Days

(*Continued from page* 437)

in this district was better than 30 days for coal on hand. All of these concerns in the Detroit zone, however, are directly affected by what happens to the Detroit Edison Company, however, as they are not equipped to manufacture all of their own power, but simply to take care of their heating, compressed air and similar needs.

When asked to comment on Henry Ford's move in announcing a closing of the Ford plants on Sept. 16, no one was anxious to be quoted. The opinion generally expressed, however, is that the move was designed to focus, rather dramatically, popular and perhaps legislative attention on the effects of the coal and rail strikes even if closing proved eventually to be unnecessary. Not a few scented a political angle to the announcement.

H. H. Rice, president of the Cadillac Motor Car Co., summed up the situation which applies generally to the Detroit plants when he said, "When we erected our new plant, we put up a large power house which is sufficient to take care of all our heating, pumping, compressed air and similar requirements. It is not designed to be large enough to run our shops. Power for this purpose is drawn from the Detroit Edison Co. If they are forced to curtail, we will have to do likewise."

There is no thought of changing over to the use of fuel oil in Detroit, although the Ford Motor Co. has some temporary installations in their power plant in Highland Park which are working out very well. As pointed out by Dow, of the Detroit Edison Co. this would be some relief if it were a case of actual shortage of coal and not a shortage or rather a slowness in transportation. The same problems which affect the movement of coal also affect the movement of fuel oil as the oil would have to come in by rail, since Detroit has no pipe line.

May Close in Canada

WINDSOR, ONT., Aug. 28—Ford Motor Co. of Canada may have to shut down Sept. 30, according to officials of that company. While the fuel supply of the Canadian concern is fairly satisfactory, it is pointed out that the supply of a great many of the suppliers is low, and this would force a closing.

Not to Curtail Output

SPRINGFIELD, MASS., Aug. 28—The Moore Drop Forging Co., extensive manufacturer of drop forgings for the Ford Motor Co., will not curtail its operations at present because of the order to close the Ford plants, Secretary J. M. Williams said today.

Indianapolis Relies on Mines, Close By

Manufacturers, However, Have Good Supply of Fuel—Power Will Continue

INDIANAPOLIS, Aug. 28—Automotive manufacturers of Indianapolis have coal and power supplies that will last at least ninety days with coal on the way to factories and the power companies which supply most of the manufacturers with electric power.

One concern, the Indianapolis Drop Forging Co., equipped its plant with fuel burners about six weeks ago that take care of 75 per cent of the fuel requirements of the concern. Beside this its fuel supply is in such shape that no trouble of this sort is expected provided the rail facilities continue as they are. This concern has the Ford Motor Co. as one of its principal customers and it will feel the Ford shut-down but other work will keep the plant busy for some time.

Position of Factories

Nordyke & Marmon Co. uses both electric power obtained from one of the public utilities, and also uses considerable coal for power and other purposes. At present the company's supply will last about sixty days and other shipments of coal already contracted for are expected in a reasonable time if the rail facilities do not fail.

Stutz Motor Car Co. is well protected with fuel bought some time ago and there is sufficient of this to carry the concern along for more than sixty days. Power is obtained from one of the local power companies.

National Motor Car & Vehicle Co. has plenty of coal for more than two months and is well protected on power obtained from one of the local companies. No apprehension is felt regarding the fuel condition unless some unexpected turn in the rail conditions makes it impossible to obtain future coal deliveries.

Duesenberg Automobile & Motors Co. is dependent on the power companies but has so far had no intimation that there are any contemplated shortages of power from that source.

Robt. H. Hassler, Inc., does not use coal for power purposes but has connections with two of the local power companies so that there is no fear of a shortage of power.

Light Companies Have Supply

Both the Merchants Heat & Light Co. and the Indianapolis Light & Heat Co. have adequate supplies of coal on hand and on the way to run the plants at normal for nearly three months. The Merchants Heat & Light Co. has a sixty day supply on hand. It owns a coal mine and has other shipments on the way to the city. The Indianapolis company has a ninety day supply and sees no reason to fear a fuel shortage that will necessitate any curtailment of power for manufacturing purposes. Both of these concerns apprehend no shortages unless some turn of the rail situation brings about unexpected conditions that will stop delivery of coal now on the way or soon to be en route to the city.

One of these companies felt so sure of its position a week ago that it loaned one of the automotive manufacturing companies of the city a supply of coal to tide it over a temporary shortage, which has since been turned into a surplus. The fact that Indianapolis is within sixty miles of coal mines seems to give assurance that there will be supplies for public utilities and power companies that even now have surplus stock. These have the preference for shipments from the mines which are now working.

No Curtailment Warning

It is understood that the G. & J. Tire Co. one of the largest automotive employers of the city has a reserve of coal and obtains power from one of the local companies. The Prest-O-Lite Co. plant which has not been on full production is said to be well protected for power from one of the power companies and it is expected that increased production will be started when the executive offices of the concern are moved back to this city shortly after an absence of some years.

As far as can be learned no manufacturer of the city who uses power from public utility companies has been advised of any curtailment, and no warnings have been sent out by the companies. Conditions of fuel supplies as they concern the public power companies are increasingly better every day, and even during the shut down of Indiana mines, coal was moving to these concerns from Eastern points, some of it bought at very high prices, it is understood.

Every automotive manufacturer of the city who could be reached to-day as well as the public utility power companies was optimistic as to present and future conditions.

Mines Working in Illinois

CHICAGO, Aug. 25—Coal mining in Illinois has been resumed, following the settlement Tuesday of the strike which had been in effect since April 1, and which was settled in other fields by an agreement reached at Cleveland last week.

Many factories connected with the automotive industry in Chicago and Illinois will feel the effect of the settlement, as many of them were beginning to run short of fuel. Although lack of coal had not necessitated the closing of any automotive factories of consequence here, many had seen their fuel reserves dwindle and others had kept in operation only at the expense of higher prices and additional freight charges on coal brought from other states.

The shortage of coal and the unsettled business condition incident to the strike had resulted in a considerable depression in the sales of automotive accessory manufacturers located in Chicago.

Suggestions Offered in Safety Campaign

Proposed Observance Meets General Approval—Oct. 8 to 14 May Be Dates

WASHINGTON, Aug. 29—Invitations to 50 representatives from each of seven groups concerned in highway safety are bringing a deluge of suggestions to the Highway Education Board for incorporation in a national safety campaign planned to retard the accident and death toll of the country due to traffic mishaps.

Almost without exception, replies indicate an eagerness for such a campaign, stressing the timeliness and need for a national movement of this nature. Groups requested to offer suggestions include automobile dealers associations, automobile clubs, pupils, teachers, superintendents of schools, chamber of commerce and police officials.

Outstanding suggestions received to date, it is said, include a national essay contest among all pupils doing class room work in the fifth to eighth grades, a national safety lesson contest among teachers, the observance of "Seven Days of Safety," and the distribution of "Pledges of Carefulness" among pedestrians and drivers alike. Oct. 8 to 14 seems the date most favorably agreed upon for the observance of "Seven Days of Safety," according to the general tenor of the letters received.

Frost Gear at Jackson Equipped to Burn Oil

JACKSON, MICH., Aug. 29—Oil instead of coal is now being burned at the Frost Gear plant here. No coal is available, and in order to fill current orders, it has been necessary to install temporary oil burners under the boilers. The installation has been made in the forge plant where steam power is used. The other departments use electric power and so far have not been curtailed.

The Jaxon Steel Products Co. has a supply of coal sufficient to last at least a month. At the Hayes Wheel plant, coal is used only for heating, the source of power being the municipal electric plant which has sufficient coal on hand for a few weeks. A contract has been let by the Hayes company for the erection within 90 days of a powerplant sufficient to furnish the current necessary to operate the wood wheel plant.

HAS TWO MONTHS' SUPPLY

SPRINGFIELD, O., Aug. 28—The local works of the International Harvester Co. has two months' supply of coal, according to Superintendent Charles H. Smart. "I do not know what we will do after that," Smart says. "It all depends on how conditions are. We buy our coal in the open market." Material is being received at the plant without interruption.

Cleveland Tractor Will Produce Truck

Sees Expansion of General Business—Plans for Zeder Manufacture Changed

CLEVELAND, Aug. 30—The Cleveland Tractor Co. will manufacture a ton and a quarter truck; the Zeder passenger car that was scheduled to be made in the plant will be manufactured elsewhere, and Fred W. Ramsey, former president of the Cleveland Metal Products Co., one of the best known business men of the city and a power in local financial circles, has become chairman of the board of directors of the tractor company.

These important announcements were made to-day at the plant of the Cleveland Tractor Co. in this city.

The price of the new truck has not been fixed. Plans provide for the production of the truck in October and its distribution shortly after. An expansion of industry and a general revival in all lines of trade next fall and winter are regarded as certain by backers of the company, and this was a factor that induced the company to get into truck manufacture.

Will Continue Tractor

The tractor that has been marketed by the company will be produced also.

Executives of the company state that the same engine which has been used in the tractor is adaptable to a truck, and it will be used in the new product. This will enable the company to make greater use of the engine division of the plant. The outlook for the tractor business is better, with the farmer's purchasing power increasing.

The engine is the design of Rollin H. White, president of the company.

After taking an active part in building up the Cleveland Metal Products Co. into one of the strongest industrial institutions in the city, Ramsey a few months ago resigned as president of the corporation to devote the major portion of his time to philanthropic and religious activities. He has been chairman of several community chest campaign committees. His connection with the tractor company will not interfere with this work.

Models of 1923 Oakland Have Many Body Changes

DETROIT, Aug. 30—Oakland 1923 models are now out with many body changes and some minor mechanical alterations, including new Marvel carbureter, new exhaust heated manifold with temperature control by throttle, and new Remy distributor with semi-automatic advance inclosed in breaker box instead of moving distributor head. The gearshift levers are longer, and levers for spark and throttle control, instead of the usual quadrant, are mounted on the steering column.

The bodies are deeper, with crowned fenders wider and heavier than formerly. The running board has been lowered an inch and a half. All models now are fitted with drum type headlamps. The sedans and coupes are fitted with heaters and rear view mirrors. The sport model is now more completely equipped and better upholstered.

Prices range from $975 to $1,545, no change being made from the 1922 list.

Jordan Builds New Sport Model Called "Blue Boy"

CLEVELAND, Aug. 29—The Jordan Motor Car Co. is now in production with a new four-passenger sport type known as the "Blue Boy." It is quite different from previous models although it bears some resemblance in the front to the Play Boy that was brought out some time ago. The price of the new model is $2,150.

The wheelbase has been lengthened on this model to 124½ inches, the car is low hung and the cushions hug the floor. The finish is "Blue Devil Blue" and upholstery in dark blue morocco leather without pleats and with a roll at the front to support the knees. A change is made in the steering wheel. The spokes are walnut and the spark and throttle levers are mounted in a small space at the center of the wheel without the conventional sectors.

New 5-Passenger Sedan, $2,040, Is Made by Nash

KENOSHA, WIS., Aug. 30—Nash Motors Co. announces a five-passenger six-cylinder sedan which will list at $2,040. It is built on the 121-in. wheelbase chassis and is a miniature of the seven-passenger sedan. Its interior furnishing and upholstery are mohair and it has four doors. Several years ago Nash built a five-passenger six sedan with a staggered door, but this was discontinued. This most recent addition gives Nash a line of 13 models.

Prices Are Announced for New Peerless Line

CLEVELAND, Aug. 28—Prices for the new Peerless line show an increase of about $200 over the retired series, although there can be no comparison in the prices for the reason that the new line has many changes and refinements not found in the old.

The prices of the new models are as follows:

4-pass. phaeton	$2,990
7-pass. phaeton	2,990
2-pass. town coupe	3,300
4-pass. suburban coupe	3,400
5-pass. town sedan	3,900
7-pass. suburban sedan	4,090
7-pass. berline limousine	4 390
4-pass. opera brougham	4 900

The scheduled production of the new models has been sold for one year ending Aug. 1, 1923, according to the factory.

Maxwell Cuts Prices on Its Closed Models

Reductions on Sedan and Coupe Amount to $150—No Change Made with Open Cars

DETROIT, Aug. 28—Prices on the Maxwell sedan and coupe have been reduced $150 effective immediately, while no change has been made in the open models, which remain at $885.

President William Robert Wilson states that the preference shown by the public for closed models has led to the decision to increase production on the sedan and coupe. The revised list is:

	Old Price	New Price
2-pass	$885	$885
5-pass. phaeton	885	885
Coupe	1,385	1,235
Sedan	1,485	1,335

American Lowers Lists; Guarantees 25,000 Miles

PLAINFIELD, N. J., Aug. 28—A new series is announced by President Carl H. Page of the American Motors Corp., which is accompanied by a guarantee on each car against defects and materials for 25,000 miles.

The new series on which deliveries already are being made include both open and closed models equipped with a larger engine (3½ x 5 in.) in addition to such special equipment as dash clock, cowl lights and ventilators, tonneau lights, windshield wiper and inside mirror.

List prices have been reduced from $65 on open models and $210 on closed types, including extra equipment. The revised list is as follows:

	Old Price	New Price
4-pass. roadster	$1,995	$1,885
5-pass. phaeton	1,850	1,785
7-pass. phaeton	1,925	1,850
Sedan	2,695	2,485

Stutz Expects August Gain to Be 75 Per Cent

INDIANAPOLIS, Aug. 26 — Present shipments from the factory of the Stutz Motor Car Co. are expected to raise August deliveries at least 75 per cent over July and about 100 per cent over the same month a year ago. The response from the dealers to the price cut, the dealer protection and the new outlook for the company has been prompt and will permit the record month shipment to be made despite the fact that the great activity of the period has come in the latter part of the month.

Present indications point to a brisk September trade and fall records that will continue to surpass previous marks. Drive-aways are increasingly popular with the dealers intent on getting the quickest possible action. Telegrams and letters from dealer organizations from all points of the compass with hearty congratulations tell of redoubled sales efforts now being made in the territory.

Assembling Plants In West Are Urged

Gordon Lee Says They Would Result in Enormous Saving in Freights

WASHINGTON, Aug. 30—A close study of the problems affecting manufacturers' distribution methods has convinced Gordon Lee, chief of the automotive division of the Department of Commerce, that it would be an advantage to establish partial assembling plants in the West. He believes that these plants could be operated at low maintenance cost and that savings in freights would be enormous.

Lee spent several weeks touring the far West talking with dealers and distributors. Many jobbers express the opinion that through partial assembling and packing in box cars, automobiles and trucks could be laid down for $30, whereas the present freight in many instances approximates $200. Lee believes that it will facilitate the export business with the Orient and allow brisk competition with European automobile manufacturers now cultivating the eastern markets. Lee was very emphatic in the declaration that the point of saturation has not been reached.

Made Study of Coast

Lee made a study of the automotive industries through the west coast states by journeying by way of automobile from San Diego to Seattle, with the exception of one short train journey. On this trip through the Yosemite Valley, he was accompanied by George Haberfield, president, and Robert W. Martland, secretary of the California Automotive Trades Association, and Byron L. Graves, manager of the Los Angeles branch of the Ford Motor Car Co. He addressed practically every dealers' association in three states concluding his work before the Spokane Automobile Chamber of Commerce.

Lee called the attention of manufacturers to the fact that western jobbers and manufacturers of automotive equipment as the result of educational work being carried on in behalf of jobber and dealer by the Automotive Equipment Association, are now making an earnest attempt to follow out better business practices and eliminate waste from methods pursued in the past.

Would Use Panama Canal

PORTLAND, ORE., Aug. 25—As a step to cut down the heavy freight rate charged by the railroads on automobiles into the Pacific Northwest, a rate which naturally brings the retail price on an automobile sold in Portland and elsewhere in this section to a higher figure than perhaps any other point in the United States, automobile dealers are considering securing automobiles by water through the Panama Canal. This practice may be put into execution this fall by a considerable number of the dealers.

The Automobile Dealers Association of Portland, through its secretary, Ralph J. Staehli, has for the past month been securing data relative to water shipments of automobiles and has reached the conclusion that a substantial saving can be made in this manner, which can be passed on to the ultimate purchaser.

He says:

Owing to the fact that the railroads coming into Oregon charge a higher carload minimum than for California the Pacific Northwest bears freight rates on automobiles in many instances considerably higher than California, and in fact the highest in the country. There being no prospect of freight reduction, and the railroad situation being altogether unfavorable on account of strikes, the Portland dealers have been investigating water shipment and many of them are on the point of trying it out.

Under the railway freight schedules the cost of cars, particularly closed models, has been increased sometimes as much as 20 per cent. By shipping by water we believe that this can be considerably reduced. A saving of one-third of the freight charge would be possible, our investigations have disclosed.

The cars could be handled from the eastern and middle western factories to the Atlantic seaboard by rail or canal, it is stated, and then brought through the Panama Canal to the Pacific Coast. While such shipments would take a considerably longer time than by rail, this delay would not be such an undesirable factor during the fall, winter and early spring months, although dealers would no doubt resort to rail shipments during the spring and early summer rush of buying.

Driveaways Will Rule in Making Deliveries

NEW YORK, Aug. 28—The National Automobile Chamber of Commerce is closely watching the coal priority rulings to see that the industry is placed at no undue disadvantage compared with other manufacturers.

James S. Marvin, assistant general manager of the N. A. C. C., says:

Even if the rail strike is settled soon, the automobile industry is going to be affected in the matter of deliveries this fall. Already driveaways are becoming more and more necessary because of the increasing difficulty in getting the necessary freight cars. This may get worse before it gets better and adds to the difficulty of keeping automobile cars in this service.

Despite the strikes, general business is improving to an extent that the demand for freight cars is increasing. On top of this comes the crop movements which need still more freight cars. With the automobile industry in heavy production right now difficulty is found in getting enough transportation to carry its product, despite the fact the railroads now have more automobile freight cars than ever before.

Fortunately this scarcity of transportation is not going to make us shut up shop. We have learned how to deliver cars over the road and this fall will see driveaways utilized to get the new cars into the hands of the dealers.

$57,000,000 Added to Ford's Surplus

Statement for Year Shows $61,000,000 Gain in Cash and Debts Receivable

BOSTON, Aug. 29—Ford Motor Co., incorporated under the laws of Delaware, has filed with the Massachusetts commissioner of corporations its financial statement covering the year ended April 30, 1922, showing $57,000,000 added to the Ford surplus and a gain of $61,000,000 in cash and debts receivable.

The statement shows a profit and loss surplus of $240,478,736 on that date against $182,877,696 on April 30, 1921. Cash on hand and debts receivable totaled $148,615,334 against $86,995,165 last year, while inventories were valued at $45,208,094 against $63,848,157.

Accounts and notes payable were reduced from $48,886,141 at the close of the fiscal year ended April 30, 1921, to $33,089,894 on the same date this year.

The detailed balance sheet as of April 30, 1922, with comparisons for two years, follows:

ASSETS	Apr. 30, 1922	Apr. 30, 1921
Real Estate	$81,026,633	$71,329,719
Machinery and Equipment	49,401,132	46,459,046
Inventories	45,208,094	63,848,157
Cash and debts receivable	148,615,334	86,995,165
Patent rights	110,740	81,397
Securities	15,749,953	10,361,964
Furn. fixtures, autos	39,221,960	44,779,634
Miscellaneous invest	500,815	501,815
Good will	20,517,986	20,517,986
Deferred charges	196,399	265,674
Stock in subsid'y cos	.....	.....
Total	$400,548,946	$345,140,557
LIABILITIES		
Capital stock	$17,264,500	$17,264,500
Accts. and Notes pay.	33,098,894	48,896,141
Dept. reserve, etc	*50,829,307	*43,493,394
Accrued expenses	.....	.....
Deferred charges	853,950	3,027,120
Res. for Fed. and Local taxes	58,032,559	49,591,706
P. & L. surplus	240,478,736	182,877,696
Total	$400,548,946	$345,140,557

*Includes amortization reserve.

Electric Convention Has Big Attendance

OLD ORCHARD, ME., Aug. 31—All except two of the members of the Automotive Electric Association, representing the manufacturers of starting, lighting and ignition apparatus and batteries, are in attendance at the four day summer meeting here. Sixty-five are present, which makes the meeting the largest in the history of the association. The members with their families are combining business and recreation. Motor trips along the Maine coast, clam bakes, deep sea fishing and golf are the recreational features.

FINANCIAL NOTES

Gray & Davis, Inc., has filed a certificate with the Commissioner of Corporations at Boston showing an increase in common stock from 138,904 shares without par value to 254,404 shares no par; also the creation of $750,000 preferred stock $100 par. Of the new common 20,000 shares are to be issued for cash to net the company $250,000; 30,000 shares to Arthur T. Murray at $20 a share under the option contract which expires Feb. 1, 1925; 87,500 shares previously authorized to be reserved to provide for conversion into common of the $1,000,000 first mortgage 7 per cent convertible sinking fund gold bonds and the 7,500 shares of 8 per cent preferred, and 3,000 shares to be issued to bankers underwriting the $1,000,000 bonds.

Republic Rubber Co.'s receiver reports that for the six months period ended June 30 there was a deficit of $21,664 after charges amounting to $232,731. Gross earnings aggregated $2,467,109. Current gross business is reported to be running at the rate of about $650,000 a month. The balance sheet gives net current assets at $3,687,271, not including disputed claims of $3,250,000, which have been reduced $500,000 in six months.

Chandler Motor Car Co. is expected to declare the regular quarterly dividend of $1.50 a share at the meeting of the directors next month. It is reported that the earnings for July were more than sufficient to cover the regular quarterly dividend requirements.

Moon Motor Car Co., St. Louis, reports for the six months ended June 30, 1922, net income of $236,655 after costs and expenses. For the year ended Dec. 31, 1921, the net income was $99,373 after cost, expenses and taxes.

Reo Motor Car Co. has declared an extra dividend of 1 per cent in addition to the regular quarterly dividend of 1½ per cent. Both dividends are payable Oct. 2 to stock of record Sept. 15.

Timken Roller Bearing Co. directors have declared an initial dividend of 75 cents a share payable Sept. 20 to stockholders of record Sept. 11.

Italy Is Making Ready for Its Grand Prix Race

MILAN, ITALY, Aug. 20 (*By Mail*) —Felice Nazzaro, driving the 122 cubic inch Fiat with which he won the recent French Grand Prix at Strasbourg, to-day opened Italy's first automobile speedway at Monza, six miles from Milan.

Grand stands, garages, etc., yet remain to be built, but these will be completed in time for the first race, announced to be held on Sept. 3. This event is for cars having a piston displacement limited to 91 cu. in. One week later, on Sept. 10 the Italian 500-mile Grand Prix race will be held for cars of 122 cu. in. piston displacement. This race has united 38 competitors from France, Italy, Germany, Austria and England.

FAVORS GASOLINE TAX

CHICAGO, Aug. 30—A state gasoline tax is proposed by Governor Small to finance further good roads construction in Illinois. The State is now expending the proceeds of a $60,000,000 bond issue to build hard roads, and the Governor favors an additional bond issue with interest and sinking fund to be provided by a gasoline tax. The Governor said:

"I expect to recommend the law to the next session of the Legislature. The people want roads. I believe that the entire bond issue would be paid by automobiles. I believe that a truck should pay its proportion in relation to its earning capacity. A gasoline tax is the surest and fairest way of getting at a basis."

Coast Officials to Meet on Uniform Vehicle Law

PORTLAND, ORE., Aug. 25—Discussion of appropriate legislation dealing with regulation of motor vehicle traffic on the highways, with a particular view to uniformity throughout the Pacific coast, is the subject of a proposed conference of officials of the seven western states and British Columbia which probably will be held in Portland late in September.

Letters suggesting the conference were sent out this week by Sam A. Kozer, secretary of State of Oregon and in charge of motor vehicle control, following an exchange of ideas with L. D. McArdle, director of efficiency, and Fred J. Dibble, director of the bureau of licenses, of the State of Washington.

Officials to whom invitations have been sent by Kozer and who probably will be in attendance at the conference are:

Charles J. Chenu, superintendent of the motor vehicle department of California; Robert O. Jones, secretary of state of Idaho; Charles T. Stewart, secretary of state of Montana; George Brodigan, secretary of state of Nevada; H. E. Crockett, secretary of state of Utah; L. D. McArdle, director of efficiency of Washington, and the director of the motor vehicle department of British Columbia.

Kelly-Springfield Truck Gets Railway Order

SPRINGFIELD, OHIO, Aug. 28—An order for motor railway equipment has been received by the Kelly-Springfield Motor Truck Co. from the Edwards Motor Railway Co. This equipment will be used on a southern railroad for local traffic. Shipment will be made within the next two or three weeks. The Springfield company has filled a number of orders from the Edwards company for motor equipment for steam lines. The question of motorizing the Delaware division of the Big Four Railroad was taken up with the railroad officials several months ago and is still pending.

President Charles W. Young of the Springfield company has called a meeting of the directors for next Wednesday at Hotel Shawnee, which will be in the nature of a business conference.

While there has been a slight falling off in orders in August, he company reports that the outlook is good for the fall and winter, unless the strikes seriously affect business.

Indications are that production will be steadily increased at the plant of the Westcott Motor Car Co.

BANK CREDITS

Written exclusively for AUTOMOTIVE INDUSTRIES *by the Guaranty Trust Co., second largest bank in America.*

Last week a slight tendency toward hardening was shown in money rates. Call loans covered a range of 3¼ per cent to 4½ per cent as compared with 3 per cent to 4 per cent the previous week. In time money the demand was fair but the volume of business transacted was moderate. The rates quoted were 4 per cent for 60 and 90 days' maturities against 3¾ per cent to 4 per cent in the previous week; 4¼ per cent for four and five months, against 4 per cent and 4¼ per cent; 4½ per cent for six months, against 4¼ per cent to 4½ per cent. The prime commercial rate remained unchanged at 3¾ per cent to 4 per cent.

For the week ending August 12 car loadings of merchandise and miscellaneous freight decreased 8,224 while coal loadings increased 5,313. Total coal loadings for the week aggregated 84,559 against 156,891 cars for the corresponding week last year, and 221,884 cars two years ago. The total loadings of all freight were 852,580 cars, as compared with 808,269 last year and 971,269 two years ago.

Last week an announcement of special significance was that of the 20 per cent increase in the wages of day labor in the plants of the United States Steel Corporation to take effect Sept. 1. The present increase will affect approximately 156,000 laborers.

The Federal Reserve statement as of August 23 showed a decrease of $4,672,000 in gold reserves and $5,194,000 in total reserves. Total bills on hand increased $24,330,000 and total earning assets $20,485,000. Deposits increased $4,886,000 and Federal Reserve notes in circulation $4,386,000. As a result of these changes the reserve ratio decreased from 80.2 per cent to 79.8 per cent.

Reliance Plant Is Sold To Stockholders' Agent

APPLETON, WIS., Aug. 28—Dr. D. S. Runnels of Appleton, who is understood to be representing stockholders working on reorganization plans, bid in the entire property of the Reliance Motor Truck Co. of this city at trustee's sale. The bid amounted to $1, and the assumption of incumbrances totaled about $120,000.

This was the only bid submitted for the entire property and probably will be accepted. Four other bids for parcels of the assets were entered. These ranged from $5,000 to $8,000 and were for the personal property, inventoried at $35,000.

Stockholders of the defunct concern have made good headway in reorganizion plans and believe they will be able to rehabilitate the industry quickly. The Reliance company manufactures motor trucks as well as motor truck axles for the truck trade. John Hackworthy is serving as trustee.

Canadian Exports Gained 21 Per Cent

Makes Up Decrease Experienced in June—Figures Rise and Fall Monthly

WASHINGTON, Aug. 29—Exports of automotive products from Canada during July reached the total value of $1,818,-359, an increase of about 21 per cent over the exports during June, which more than makes up for the decrease of 13 per cent during the latter month as compared with May. This was announced to-day by the Automotive Division of the Department of Commerce.

The markets of Canadian automotive manufacturers have not increased steadily as have those of American producers, nor have they been stable in their demands. Since the first of the year, each increase in the value of Canadian exports has been followed by a decrease and each decrease by an increase, with the exception of March and April, when two consecutive decreases were recorded.

The number of passenger cars shipped monthly has fluctuated from 1534 in January to the high point of 2983 in March, July shipments of 2812 cars valued at $1,566,194 coming close to the March record and marking an increase of 24 per cent in number and 10 per cent in value over passenger car shipments during June. There were 211 trucks exported at a value of $99,052, an increase of 24 per cent in number and 33 per cent in value, while parts shipped reached the value of $153,113, a gain of 51 per cent in value.

Greatest Gain in British India

The most notable increase in passenger car shipments during July took place in British India, where, in place of the average monthly shipments of 80 cars during the past months, 309 were imported during July, valued at $130,062. This increased demand is due partly to the increased Indian import tariff.

New Zealand imported 380 passenger cars from Canada during July as compared with 169 in June, and Australia took 824 against 805. The United Kingdom increased its imports of passenger cars from Canada to 512 in July from 368 during June, while South Africa maintained its quota of the previous month with 206 passenger cars. Argentina imported 74 as compared with 34.

Australia was again the largest importer of automotive products from Canada, having taken 112 motor trucks and $61,240 worth of parts, as well as the largest number of passenger cars. New Zealand with 42 trucks reached second place in truck shipments.

"BUSINESS IN FARMING"

CHICAGO, Aug. 28—The Power Farming Bureau, which was recently incorporated by George E. Fuller and others, has commenced publication, in co-operation with the Gas Engine and Farm Power Association, of a monthly bulletin called "Business in Farming." The first number just issued from the office of the Bureau in the Monadnock Building contains the tentative by-laws of the Bureau which declare its purpose "to promote the use of mechanical power in agriculture."

INDUSTRIAL NOTES

Monkey Grip Tire Co., Fort Worth, Texas, expects to have its cotton mill and tire factory running within four months. One of the old buildings, formerly used by the Texas Motor Car Association and recently purchased by the Monkey Grip concern, will be converted into the combination cotton and tire plant. The West Texas Chamber of Commerce, representing a tier of Texas counties, will aid in purchasing and shipping the cotton to the mill here. Part of the latter's product will be consumed by the tire factory. R. Copeland, vice-president, will be in charge of the cotton mill.

Robert Bosch Magneto Co., Inc., 122 West 64th Street, New York, has established a direct branch office at 1302 South Wabash Avenue, Chicago, with Lee C. Carlton as the executive head. This branch will take care of the business of the middle western section. It will carry a complete stock of Robert Bosch magnetos, spark plugs, spot lights, horns, etc., as is done in the New York office.

Manhattan Electrical Supply Co., Inc. has moved its executive offices to 125 Church Street, New York City. J. J. Raferty, formerly of the Western Electric Co. has been appointed manager of the New York branch, of which Howard N. Croop is sales manager and C. H. Boehler is city sales manager.

Hardwood Manufacturers' Institute, whose membership comprises various hardwood manufacturers, has moved its offices from Memphis, Tenn., to 1020 South Wabash Avenue, Chicago.

Morse Chain Co. has moved its Philadelphia office to 612 Franklin Trust Building. J. A. Meaney is district manager.

Demand Taxes Cadillac Production Facilities

DETROIT, Aug. 29—In a statement issued by H. H. Rice, president of Cadillac Motor Car Co., the rate of production and sales at the present time is declared to be considerably in excess of all previous schedules. A majority of distributors, he reports, find business by far the best that they have ever enjoyed.

Foreign business has picked up remarkably, Rice said, and production facilities at the plant have been taxed to meet the increased business from this field as well as the domestic. There is every indication, he said, that the record business in all fields will continue during the fall months. Cadillac distribution has been increased until it now includes a majority of communities which formerly were considered too small for an independent Cadillac agency.

Manufacturing and engineering improvements are being made constantly upon the car, Rice declared, to make it give the utmost in owner satisfaction.

METAL MARKETS

Perhaps never before in the steel market's history has there been a time when price advances, liberally advertised on the front pages of the newspapers as those of the last few weeks have been, were accompanied by so marked a lack of interest in the market as purchasing agents have shown ever since the leading interest announced higher sheet prices. The barrage of publicity that attended the raising of the wage scales in the steel industry caused many consumers to interpret this move as one that was prompted by ulterior motives, and because of this impression there are still many steel consumers oblivious of the fact that this 20 per cent wage advance has added at least $4 to the cost of every ton of steel products.

The wage advance had been in the air for several months, and has been repeatedly foretold in these market reports. It was only the psychological moment and the spectacular manner chosen for announcing it that caused astonishment. Even astute steel buyers forgot for the moment to figure out how much had been added to the cost of every ton of steel bought by them, and sought to interpret the meaning of this move with reference to the outstanding labor troubles. Some concluded that the object of the advance was to head off a strike in the steel industry, while others interpreted it to be chiefly aimed at a restoration of normal producing conditions in the coal mines which the leading steel interest owns and operates in the Connellsville region and which are considered of pivotal importance by the unionists. For a long time the steel industry has suffered from a lack of labor, and obviously the higher wage scale was forced upon it by the natural working of the law of supply and demand.

It will be well to bear in mind at this time, however, that production costs and the nominal asking prices of steel producers do not make the steel market. They are important factors in its making, but not nearly as important as is—the demand. So far there has been no sign of fresh demand for those steel products chiefly consumed by the automotive industries. As was demonstrated earlier this year, the steel industry must at times endure protracted periods in which, because of a sharp contraction in the demand, it can keep mills in operation only by assuming losses. The wage advances of 20 per cent go into effect Sept. 1, and as practically all mills are committed for their September and at least for part of their October output at the prices that ruled previous to the recent advances the increased cost in production over the next six weeks will come out of producers' pockets.

Pig Iron.—Foundry and malleable irons are becoming scarcer and, while no automotive foundry has so far been compelled to curtail operations, it is becoming more and more difficult to locate stop-gap tonnages.

Steel.—Automotive alloy steel makers have announced a $5 per ton advance throughout the entire list. Special chromium steels are subject to special arrangements for delivery and analysis.

Aluminum.—Advices from Germany state that rolling mills have sufficient orders on hand to keep them fully employed over the year's remainder. New export orders are booked only for delivery in six months. The market here is unchanged.

Copper.—While the market is easier, consumers recognize that lack of fuel this winter may make a big dent in output, especially in the Lake region.

Calendar

SHOWS

Sept. 4-9—Indianapolis, Automobile and Accessory Show in conjunction with the Indiana State Fair, Auto Show Building, under the auspices of the Indianapolis Automobile Trade Association, J. B. Orman, manager.

Sept. 23-30—New York, Closed Car Show, Grand Central Palace.

Oct. 7-14—New York, Electrical and Industrial Exposition, Grand Central Palace.

Oct. 21-28—Washington, D. C., Annual Closed Car Salon, Convention Hall, under the auspices of the Washington Automotive Trade Association.

Nov. 13-18 — Chicago, Annual Show and Meeting of the Automotive Equipment Association.

Dec. 3-9—New York, Eighteenth Annual Automobile Salon, Commodore Hotel.

Jan. 6-13—New York, National Automobile Show, Grand Central Palace, under auspices of National Automobile Chamber of Commerce.

Jan. 8-13—Body Builders Show, Twelfth Regiment Amory, under the auspices of the Automobile Body Builders Association.

Jan. 27-Feb. 3—Chicago, Annual Automobile Salon.

Jan. 27 - Feb. 3 — Chicago, National Automobile Show, under auspices of National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.

FOREIGN SHOWS

Sept. 1922 — Rio de Janeiro, Brazil, Automobile Exhibits in Connection with the Brazilian Centenary Associação Automobilista Brazileria.

Sept. 15-20—The Hague, Automobile Show.

September — Buenos Aires, Argentina, Annual Exhibition, Sociedad Rural Argentina.

Oct. 4-15 — Paris, Automobile Show, Grand Palais.

Nov. 3-11 — London (Olympia), Automobile Show.

Nov. 29-Dec. 4—London (Olympia), Cycle and Motorcycle Show. British Cycle Motors, The Tower, Warwick Road, Coventry.

November—Buenos Aires, Argentina, Annual Exhibition, Automovil Club Argentino.

Jan. 13-24—Brussels, Sixteenth International Automobile and Cycle Exposition, Palais du Conquantenaire.

CONVENTIONS

Oct. 7-14—Detroit, Second National Aero Congress and National Airplane Races.

Sept. 13, 14, 15—Buffalo, Lafayette Hotel, Annual credit meeting, Motor and Accessory Manufacturers Ass'n.

Sept. 14-15—Chicago National Used Car Conference, National Association of Automobile Show and Association Managers, Congress Hotel.

Sept. 18-23, 1922 — Rome, Italy, Second Annual Meeting of the International Chamber of Commerce.

Oct. 2-7—Detroit, Fourth International Steel Exposition and Convention of the American Society for Steel Treating and the American Drop Forging Institute, General Motors Building.

Oct. 18-20—Chicago, National Association of Farm Equipment Manufacturers, Congress Hotel.

Oct. 26-28—Washington, Second National Conference for the Study of Highway Engineering and Highway Transport Education.

RACES

Sept. 10—Monza, Italy, Italian 500-mile Grand Prix Race.

Sept. 16—Kansas City Speedway, 300 mi. International Speed Race.

S. A. E. MEETINGS

Sept. 16—Metropolitan Section, Annual Outing, West Point; Sept. 21—Automobile Club of America, George A. Round, Lubrication.

Sept. 22—New England Section, Engineers Club, Boston, Starting and Lighting Equipment, Louis Ehrlich.

Sept. 29—Detroit Section, Lubrication, A. A. Bull.

Federal Bank Finds Good Fall Prospects

WASHINGTON, Aug. 29—Reviewing general business and financial conditions throughout the several Federal reserve districts for the month of August, the Federal Reserve Board has found that manufacturing activity in the automobile industry is one of the bright spots of the industrial situation. The fact that the activity is still far in excess of a year ago, despite seasonal recession, is taken as an encouraging sign.

The board says:

The outstanding feature of the month has been the inherent soundness which the general business situation has manifested in the face of the difficulties which have been encountered. This has been shown by the continuance of activity at a relatively high level despite labor disturbances, in particular, those in the coal and transportation industries, and despite the fact that some recession of activity is normally to be expected at this season of the year.

Prices of important commodities continued their upward tendency during July, the index number of the Federal reserve board for that month being 165, or four points greater than the June figure. During August, however, conflicting tendencies in price movements were apparent. The excellent agricultural prospects provide an encouraging outlook for the fall trade.

AIR MEET POSTPONED

CHICAGO, Aug. 30—The Chicago Aeronautical Bureau announces that the aviation meet and air program which was originally scheduled to be held in Grant Park, on the Chicago lake front, from Aug. 4 to 13, has been postponed until the first two weeks in August next year, because preparations were not complete. It is announced that preparations will be commenced early in 1923 for the affair. C. S. Rieman, president of the Elgin Motor Car Corp., is head of the Aeronautical Bureau.

Show Managers to Hold Used Car Conference

NEW YORK, Aug. 29—A National Used Car Conference will be held at the Congress Hotel, Chicago, Sept. 14-15, under the auspices of the National Association of Automobile Show and Association Managers.

The speakers include L. B. Sanders, secretary of the Boston Used Car Statistical Bureau, Ginder Abbott, member of the Automobile Dealers Association of New Orleans, a Saginaw dealer who will explain the workings of the Saginaw plan, B. B. Burns, a successful used car dealer of Decatur, Ill., and president of the Illinois Automotive Trade Association, and S. E. Comstock, vice-president of Williams & Hastings, Detroit distributor.

There will also be addresses by representatives of the Detroit, St. Louis and Kansas City dealer associations. A round table discussion will close each day's session. The afternoon of the second day will be devoted to the subject, "How Can We Make the Automobile Shows Sell More Cars?"

All automobile trade association secretaries and dealers throughout the country are invited to attend.

KISSEL SEES BIG 1923

CHICAGO, Aug. 30—The Kissel Motor Car Corp., according to G. A. Kissel, president of the company, is preparing for the biggest year in its history when the work for 1923 swings under way. At present, the Kissel is going strong in the sale of both open and closed cars.

Tax from Industry Fell Off $11,000,000

WASHINGTON, Aug. 27—Preliminary statements by the Collector of Internal Revenue show that the payment of excise taxes for the automobile industry fell off by approximately $11,000,000 during the last fiscal year. The report shows that the excise taxes on automobiles for the fiscal year of 1922 amounted to $104,430,163 as compared with $115,546,249 for the fiscal year of 1921.

A detailed account of the Internal Revenue receipts for the fiscal year of 1921 and 1922 by objects of taxation show that the manufacturers' excise tax on automobiles, trucks and automobile wagons decreased $3,236,153 as the total collections on this item for 1922 were $8,403,902 as against $11,640,055 for 1921. The manufacturers excise taxes on other automobiles and motorcycles fell off $7,703,749, making collections for 1922 on this item $56,684,434, as compared with $64,388,184 for 1921.

The manufacturers' excise tax on tires, parts, or accessories for automobiles, etc., decreased $176,182. The total collection on these items amounted to $39,341,826 for 1922.

GAIN FOR INTERNATIONAL

MILWAUKEE, Aug. 28—The Milwaukee works of the International Harvester Co. are operating at approximately 62 per cent of capacity, and prospects seem to be for a material increase in this rate, due to the brilliant crop outlook. The Milwaukee plant is the largest tractor works of the I. H. C. group, also making farm gas engines, cream separators, etc. The showing as August draws to a close is the best the Milwaukee works have made in more than two and a half years.